CHAPTER IV

FINDINGS AND DISCUSSION

A. General Description of the Research Location

1. Brief History of English Department

The location of this research was in English department of Tarbiyah faculty of IAIN Antasari Banjarmasin. English department or called *Tadris Bahasa Inggris* was firstly opened in 1984. The first head and secretary were by Drs. H. Abdulkadir Munsyi, Dipl. Ad. Ed and Drs. H. Ahdi Makmur. A change in structural personnel happened in the next term. Drs. H. Syarifuddin Syukur, M. A. was assigned as the head and Drs. H. Ahdi Makmur was still in secretarial position. Since the operational permission from the Department of Religious Affairs (DEPAG) for English Department had not been obtained yet, English Department must be temporarily closed in 1988, until the permission obtained.

The operational permission was finally obtained in 1997. English Department was re-opened for academic year 1997/1998 and got a new *name Jurusan Pendidikan Bahasa Inggris*. In this re- opening period, Drs. H. Ahdi Makmur, M. Ag. Was assigned as the head of department and Drs. Sa'adillah as the secretary. Because Drs. Saadillah was continuing his magisterial degree, the secretary position was replaced by Drs. Husnul Yaqin, M.Ed. after then, since 2003 the secretary was replaced by Dra. Wardah Hayati with Drs. H. Ahdi Makmur, M. Ag stills the head for the second

time of the department. Then in September 2005 until 2006, the head of English Department was Drs. Isa Anshari MZ and Dra. Nida Mufidah, M. Pd as the secretary. Then because of Drs. Isa Anshari MZ passed away, the head of English Department was lead by Drs. Saifuddin Ahmad Husin, M.A since January 2007 and Dra. Nida Mufidah, M. Pd as the secretary, but in Agustus 2007 Drs. Saifuddin Ahmad Husin, M.A resigned from his position because there were many things he had to do. As the next leader, Dra. Nida Mufidah, M. Pd handled English Department.

Since January 2008 until December 2009 English Department has led by Dra. Nida Mufidah, M. Pd and Nurlaila Kadariyah, S. Ag as a secretary since January 2008 until December 2009 and then Ridha Fadillah, M. Ed as the secretary. It still being leaded by Dra. Nida Mufidah, M. Pd and the secretary is Nani Hizriani, M. A since july 2010 until December 2012. Then in January 2013 English Department has the new head is Drs. Saadillah, M. Pd with secretary is Nani Hizriani, M. A with new name is Department of English Education (Pendidikan Bahasa Inggris).

The main purpose of this Department is to produce qualified English Department scholars who can exist in the development English language, maintain the ability in linguistic and literature, able to be the professional English teachers in elementary, midle degree, intermediate degree, and makes English department as the center of accupation and development of English teacher staff.

English Department apply curriculum which consists of 160 credits of subject including institutional subjects, faculty subjects, and English Department subjects.

The students of English Department will spend at least 4 years to finish all those credits subject.

In order to enhance all students and lecturers in the department, English Department tried to invite native speaker of English to come and teach in the department by working together with an organization called RELO (Regional English Language Office). RELO organizes fellows (native speakers of English) who are assigned to come and teach in universities around Indonesia. The cooperation aims to encourage Indonesian students' quality in English competency. It is also aims to encourage teacher' competence of teaching and learning methods, approaches, techniques and materials, especially English department lecturers. The cooperation between English department and RELO began in 2007. So far, there have been three fellows who were already assigned in English Department, they are: Suzannah Marie Schoff, M.A (2007/2008), Andrea Taylor, M.A. (2008/2009), and Ashleigh Sayer, M.A (2009/2010).

Table 4.1.The Number of English Language Fellows of EnglishDepartment IAIN
Antasari Banjarmasin

No	English fellows	Period	From	Educational background	
1.	Suzannah Marie	September	California,	B.A. at University of San	
	Schoff, M.A	2007 until	United	Fransisco, CA	
		june 30 th	States	M.A TESOL at Intrax	
		2008.		English Institute, Chicago	
				IL.	

Table 4.1.The Number of English Language Fellows of EnglishDepartment IAIN
Antasari Banjarmasin

2.	Andrea Taylor,	August 30 th	California,	B.A Drama and Art at San
	M.A.	2008 until	United	Fransisco State University.
		June 30 th	States	M.A TESOL Diploma at
		2009.		San Fransisco State
				University.
3.	Ashleigh Sayer,	September	New	B.A Biology and Music at
	M.A	2 nd 2009 until	Hampshire	Keyon College, Ohio MA
		June 30 th	United	Literacy of Bilingual, ESL
		2010	States	and Multicultural
				Educational at University of
				Massachusetts, Amherst.

2. Description about Lecturer and Students Condition

There are 15 permanent lecturers (civil servants) of English Department of Tarbiyah Faculty of IAIN Antasari Banjarmasin from different educational background. Most of lecturers graduated from abroad colleges, the lectures that that they taught are based on their educational background, for the complete data about lecturers and their educational background, it can be seen on the appendix 1.

There are 621 students of English Department of Tarbiyah Faculty of IAIN Antasari Banjarmasin in academic year 2012/2013. The generations of the students are from academic year 2006/2007 until 2012/2013. The number of students such as 68 students from academic year 2006/2007, 61 students from academic year

2007/2008, 59 students from academic year 2008/2009, 82 students from academic year 2009/2010, 101 students from academic year 2010/2011, 108 students from academic year 2011/2012, 142 students from academic year 2012/2013. The students who are being the subject of this research are the students from academic year 2011/2012 and they are in the fourth semester right now. For more complete information about students of English Department, it can be seen on the appendix 2.

On this chapter the writer describes about result of research on the field based on the test result as the primary data to better understand about the students' vocabulary mastery and listening skill at fourth semester students.

B. Findings

The data of vocabulary mastery and listening skills of the students at the fourth semester in English Department IAIN Antasari in academic year 2012/2013 was directly gotten from the research location. Data X (students' vocabulary mastery) was acquired from vocabulary written test that had been performed at once for about 25 minutes. Furthermore, data Y (students' listening skill) was acquired from listening test that had been performed at once for about 25 minutes as well.

Based on the result of vocabulary mastery test of the students at the fourth semester in English Department IAIN Antasari in academic year 2012/2013, it was found the data that the highest score is 90 and the lowest score is 35. The accumulated score is 7160. The result can be seen in the table below:

Table 4.2. Score of Students' Vocabulary Mastery

No	Students' code number	Students' vocabulary mastery (X)
1	1101240589	65
2	1101240605	75
3	1101240621	80
4	1101240638	75
5	1101240637	65
6	1101240657	60
7	1101241231	80
8	1101240607	65
9	1101240685	65
10	1101240681	75
11	1101240592	55
12	1101240683	60
13	1101240687	60
14	1101240617	70
15	1101240633	80
16	1101240668	70
17	1101240679	55
18	1101241235	80
19	1101240587	80
20	1101240594	75
21	1101240672	75
22	1201240773	65
23	1101240627	75
24	1101240624	75
25	1101240667	65
26	1101240585	75
27	1101240630	70
28	1101240614	75
29	1101240595	75
30	1101240609	65
31	1101240629	75
32	1101240616	70
33	1101240652	75
34	1101240644	70

Continuing Table of 4.2 Score of students' vocabulary mastery

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35	1101240615	75
36	1101240664	65
37	1101240659	65
38	1101240631	80
39	1101240666	55
40	1101240653	70
41	1101240665	65
42	1101240590	60
43	1101240677	60
44	1101240680	65
45	1101240686	70
46	1101240669	75
47	1101240670	65
48	1101240651	60
49	1101240613	55
50	1101240647	70
51	1101240599	70
52	1101240591	70
53	1101240626	55
54	1101240581	70
55	1101240602	50
56	1101240632	65
57	1101240600	70
58	1101240641	70
59	1101240584	70
60	1101240612	70
61	1101240610	75
62	1101240601	70
63	1101240582	70
64	1101240619	70
65	1101240588	50
66	1101240597	55
67	1101240649	75
68	1101240650	60
69	1101240678	85
70	1101240656	55
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Continuing Table of 4.2 Score of students' vocabulary mastery

71	1101240586	45
72	1101240604	75
73	1101240603	55
74	1101240636	70
75	1101240625	75
76	1101240611	70
77	1111241228	55
78	1101240642	65
79	1101240634	35
80	1101240622	45
81	1001240518	90
82	1101240688	80
83	1101240596	55
84	1101240676	65
85	1101240640	65
86	1101240606	55
87	1101240643	65
88	1101240624	55
89	1101240639	55
90	1101240620	75
91	1101240646	45
92	1101240648	55
93	1101240662	85
94	1101240663	75
95	1101240661	80
96	1101240658	70
97	1101240671	60
98	1101240660	50
99	1101240674	80
100	1101240675	80
101	801249199	45
102	1101240618	45
103	1101240583	55
104	1101240684	65
105	1001240568	70
106	1101240623	40

Continuing Table of 4.2 students' vocabulary mastery

107	1101240673	65
108	901240351	70
Total		∑x=7160

While. from the result of listening test of the students at the fourth semester in English Department IAIN Antasari in academic year 2012/2013, it is found the data that the highest score is 100 and the lowest score is 47.5. The accumulated score is 8140. The test result can be seen in the table below:

Table 4.3. Score of Students' Listening Skill.

No	Students' code number	Students' listening skill (Y)
1	1101240589	77.5
2	1101240605	82.5
3	1101240621	85
4	1101240638	72.5
5	1101240637	67.5
6	1101240657	65
7	1101241231	80
8	1101240607	80
9	1101240685	85
10	1101240681	85
11	1101240592	87.5
12	1101240683	80
13	1101240687	77.5
14	1101240617	95
15	1101240633	65
16	1101240668	100
17	1101240679	85
18	1101241235	80

Continuing Table of 4.3. Score of Students' Listening Skill.

19	1101240587	85
20	1101240594	82.5
21	1101240672	95
22	1201240773	90
23	1101240627	90
24	1101240624	65
25	1101240667	80
26	1101240585	95
27	1101240630	87.5
28	1101240614	80
29	1101240595	80
30	1101240609	77.5
31	1101240629	80
32	1101240616	75
33	1101240652	85
34	1101240644	75
35	1101240615	85
36	1101240664	65
37	1101240659	60
38	1101240631	72.5
39	1101240666	80
40	1101240653	75
41	1101240665	87.5
42	1101240590	67.5
43	1101240677	75
44	1101240680	65
45	1101240686	72.5
46	1101240669	77.5
47	1101240670	82.5
48	1101240651	82.5
49	1101240613	77.5
50	1101240647	77.5
51	1101240599	82.5
52	1101240591	82.5
53	1101240626	87.5
54	1101240581	72.5

Continuing Table of 4.3. Score of Students' Listening Skill.

55	1101240602	70
56	1101240632	57.5
57	1101240600	82.5
58	1101240641	72.5
59	1101240584	67.5
60	1101240612	60
61	1101240610	90
62	1101240601	72.5
63	1101240582	57.5
64	1101240619	77.5
65	1101240588	70
66	1101240597	57.5
67	1101240649	82.5
68	1101240650	87.5
69	1101240678	95
70	1101240656	67.5
71	1101240586	62.5
72	1101240604	82.5
73	1101240603	50
74	1101240636	80
75	1101240625	65
76	1101240611	62.5
77	1111241228	80
78	1101240642	52.5
79	1101240634	57.5
80	1101240622	52.5
81	1001240518	67.5
82	1101240688	90
83	1101240596	70
84	1101240676	85
85	1101240640	75
86	1101240606	57.5
87	1101240643	67.5
88	1101240624	67.5
89	1101240639	57.5
90	1101240620	75

Continuing Table of 4.3. Score of Students' Listening Skill.

91	1101240646	52.5
92	1101240648	62.5
93	1101240662	60
94	1101240663	87.5
95	1101240661	85
96	1101240658	67.5
97	1101240671	82.5
98	1101240660	75
99	1101240674	65
100	1101240675	90
101	801249199	62.5
102	1101240618	47.5
103	1101240583	62.5
104	1101240684	82.5
105	1001240568	67.5
106	1101240623	85
107	1101240673	85
108	0901240351	95
	Total	∑Y=8140

1. Data Presentation about Students' Vocabulary mastery

To know the students' level at the test, the writer classifies the data into 6 categories, namely excellent, good, sufficient, low, very low and poor as the standard score of the test. The clarification of students' ability can be seen in the table as below:

Table 4.4. Clarification of Students' in Vocabulary Mastery

Score	Frequency	Percentage	Category
80 – 100	13	12.03%	Excellent
70 - < 80	43	39.81%	Good
60 - < 70	27	25%	Sufficient
50 - < 60	18	16.66	Low
40 - <50	6	5.55	Very low
0 -< 40	1	0.92	Poor
Total	N=108	100%	

The table above shows students' ability of vocabulary mastery. 12.03% students' are in excellent level. 39. 81% in good level. 25% in sufficient level. But there are 16.66% students' who are in low level. 5,55% in very low level. And 0.92% students get poor level.

2. Data Presentation about Students' listening skill.

To know the students' level at the test, the writer classifies the data into 6 categories, namely excellent, good, sufficient, low, very low and poor as the standard score of the test. The clarification of students' ability can be seen in the table as below:

Table 4. 5. Clarification of Students' in Listening Skill.

Score	Frequency	Percentage	Category
80 – 100	50	46.29%	Excellent
70 - < 80	23	21.29%	Good
60 - < 70	24	22.22%	Sufficient
50 - < 60	10	9.25%	Low
40 - <50	1	0.92%	Very low
0 -< 40	-		Poor
Total	N=108	100%	

The table above shows students' achievement in listening skill. 46.29% students are in excellent level. 21. 29% in good level. 22.22% in sufficient level. But there are 9.25% who are in low level. 0.92% in very low level.

C. Discussion

1. Data Analysis

a. To define the degree of students vocabulary mastery and listening skill. The degree of correlation between students' vocabulary mastery and listening skill.

$$Mx = \frac{\Sigma X}{N}$$

$$My = \frac{\Sigma Y}{N}$$

Thus, based on the table score it can be known that:

$$\Sigma X = 7.160$$

$$\Sigma Y = 8.140$$

$$N = 108$$

$$Mx = \frac{7.160}{108} = 66.29$$

$$My = \frac{8.140}{108} = 75.37$$

After the mean of data X and Y are defined, the writer makes working table of the final score as in this table below:

Table 4.6. Working Table of Analyzing the Correlation

No	Х	Υ	Х	Υ	Ху	X2	Y2
1	65	77.5	-1.29	2.13	-2.7477	1.6641	4.5369
2	75	82.5	8.71	7.13	62.1023	75.8641	50.8369
3	80	85	13.71	9.63	132.027	187.964	92.7369
4	75	72.5	8.71	-2.87	-24.9977	75.8641	8.2369
5	65	67.5	-1.29	-7.87	10.1523	1.6641	61.9369
6	60	65	-6.29	-10.37	65.2273	39.5641	107.5369
7	80	80	13.71	4.63	63.4773	187.964	21.4369
8	65	80	-1.29	4.63	-5.9727	1.6641	21.4369
9	65	85	-1.29	9.63	-12.4227	1.6641	92.7369
10	75	85	8.71	9.63	83.8773	75.8641	92.7369
11	55	87.5	-11.29	12.13	-13.3977	127.464	147.1369
12	60	80	-6.29	4.63	72.8273	39.5641	21.4369

Continuing Table 4.6. Working Table of Analyzing the Correlation

14 70 95 3.71 19.63 91.3773 13.7641 385.33 15 80 65 13.71 -10.37 -108.723 187.964 107.53 16 70 100 3.71 24.63 63.4773 13.764 606.63 17 55 85 -11.29 9.63 132.027 127.464 92.731 18 80 80 13.71 4.63 62.1023 187.9641 29.731 19 80 85 13.71 9.63 170.9773 187.9641 92.731 20 75 82.5 8.71 7.13 -18.8727 75.8641 92.731 20 75 82.5 8.71 19.63 127.4273 75.8641 385.33 21 75 95 8.71 19.63 127.4273 75.8641 214.03 22 65 90 -1.29 14.63 -90.3227 75.8641 214.03 23 75								
15 80 65 13.71 -10.37 -108.723 187.964 107.53 16 70 100 3.71 24.63 63.4773 13.764 606.63 17 55 85 -11.29 9.63 132.027 127.464 92.73 18 80 80 13.71 4.63 62.1023 187.964 21.43 19 80 85 13.71 9.63 170.9773 187.9641 92.73 20 75 82.5 8.71 7.13 -18.8727 75.8641 50.83 21 75 95 8.71 19.63 127.4273 75.8641 385.33 22 65 90 -1.29 14.63 -90.3227 1.6641 214.03 23 75 90 8.71 14.63 -5.9727 75.8641 214.03 24 75 65 8.71 -10.37 170.9773 75.8641 214.03 25 65	13	60	77.5	-6.29	2.13	-142.173	39.5641	4.5369
16 70 100 3.71 24.63 63.4773 13.764 606.63 17 55 85 -11.29 9.63 132.027 127.464 92.73 18 80 80 13.71 4.63 62.1023 187.964 21.43 19 80 85 13.71 9.63 170.9773 187.9641 92.73 20 75 82.5 8.71 7.13 -18.8727 75.8641 50.83 21 75 95 8.71 19.63 127.4273 75.8641 385.33 22 65 90 -1.29 14.63 -90.3227 1.6641 214.03 23 75 90 8.71 14.63 -5.9727 75.8641 214.03 24 75 65 8.71 -10.37 170.9773 75.8641 214.03 25 65 80 -1.29 4.63 45.0023 1.6641 21.43 26 75	14	70	95	3.71	19.63	91.3773	13.7641	385.3369
17 55 85 -11.29 9.63 132.027 127.464 92.731 18 80 80 13.71 4.63 62.1023 187.964 21.431 19 80 85 13.71 9.63 170.9773 187.9641 92.736 20 75 82.5 8.71 7.13 -18.8727 75.8641 50.836 21 75 95 8.71 19.63 127.4273 75.8641 385.33 22 65 90 -1.29 14.63 -90.3227 1.6641 214.03 23 75 90 8.71 14.63 -5.9727 75.8641 214.03 24 75 65 8.71 -10.37 170.9773 75.8641 107.53 25 65 80 -1.29 4.63 45.0023 1.6641 21.433 26 75 95 8.71 19.63 40.3273 75.8641 214.33 27 70	15	80	65	13.71	-10.37	-108.723	187.964	107.5369
18 80 80 13.71 4.63 62.1023 187.964 21.43 19 80 85 13.71 9.63 170.9773 187.9641 92.73 20 75 82.5 8.71 7.13 -18.8727 75.8641 50.83 21 75 95 8.71 19.63 127.4273 75.8641 385.33 22 65 90 -1.29 14.63 -90.3227 1.6641 214.03 23 75 90 8.71 14.63 -5.9727 75.8641 214.03 24 75 65 8.71 -10.37 170.9773 75.8641 214.03 24 75 65 8.71 19.63 45.0023 1.6641 21.43 26 75 95 8.71 19.63 40.3273 75.8641 147.13 28 75 80 -1.29 4.63 -2.7477 75.8641 21.43 29 75 8	16	70	100	3.71	24.63	63.4773	13.764	606.6369
19 80 85 13.71 9.63 170.9773 187.9641 92.73 20 75 82.5 8.71 7.13 -18.8727 75.8641 50.83 21 75 95 8.71 19.63 127.4273 75.8641 385.33 22 65 90 -1.29 14.63 -90.3227 1.6641 214.03 23 75 90 8.71 14.63 -5.9727 75.8641 214.03 24 75 65 8.71 -10.37 170.9773 75.8641 107.53 25 65 80 -1.29 4.63 45.0023 1.6641 21.43 26 75 95 8.71 19.63 40.3273 75.8641 385.33 27 70 87.5 8.71 12.13 40.3273 75.8641 21.43 28 75 80 -1.29 4.63 -2.7477 75.8641 21.43 30 65 <td< td=""><td>17</td><td>55</td><td>85</td><td>-11.29</td><td>9.63</td><td>132.027</td><td>127.464</td><td>92.7369</td></td<>	17	55	85	-11.29	9.63	132.027	127.464	92.7369
20 75 82.5 8.71 7.13 -18.8727 75.8641 50.836 21 75 95 8.71 19.63 127.4273 75.8641 385.33 22 65 90 -1.29 14.63 -90.3227 1.6641 214.03 23 75 90 8.71 14.63 -5.9727 75.8641 214.03 24 75 65 8.71 -10.37 170.9773 75.8641 107.53 25 65 80 -1.29 4.63 45.0023 1.6641 21.430 26 75 95 8.71 19.63 40.3273 75.8641 385.33 27 70 87.5 8.71 12.13 40.3273 75.8641 21.430 28 75 80 -1.29 4.63 -2.7477 75.8641 21.430 29 75 80 8.71 4.63 40.3273 75.8641 21.430 30 65 <	18	80	80	13.71	4.63	62.1023	187.964	21.4369
21 75 95 8.71 19.63 127.4273 75.8641 385.33 22 65 90 -1.29 14.63 -90.3227 1.6641 214.03 23 75 90 8.71 14.63 -5.9727 75.8641 214.03 24 75 65 8.71 -10.37 170.9773 75.8641 107.53 25 65 80 -1.29 4.63 45.0023 1.6641 21.43 26 75 95 8.71 19.63 40.3273 75.8641 385.33 27 70 87.5 8.71 12.13 40.3273 75.8641 147.13 28 75 80 -1.29 4.63 -2.7477 75.8641 21.43 29 75 80 8.71 4.63 40.3273 75.8641 21.43 30 65 77.5 3.71 2.13 -1.3727 1.6641 4.536 31 75 80<	19	80	85	13.71	9.63	170.9773	187.9641	92.7369
22 65 90 -1.29 14.63 -90.3227 1.6641 214.03 23 75 90 8.71 14.63 -5.9727 75.8641 214.03 24 75 65 8.71 -10.37 170.9773 75.8641 107.53 25 65 80 -1.29 4.63 45.0023 1.6641 21.436 26 75 95 8.71 19.63 40.3273 75.8641 385.33 27 70 87.5 8.71 12.13 40.3273 13.7641 147.13 28 75 80 -1.29 4.63 -2.7477 75.8641 21.436 29 75 80 8.71 4.63 40.3273 75.8641 21.436 30 65 77.5 3.71 2.13 -1.3727 1.6641 4.536 31 75 80 8.71 4.63 83.8773 75.8641 21.436 32 70 75	20	75	82.5	8.71	7.13	-18.8727	75.8641	50.8369
23 75 90 8.71 14.63 -5.9727 75.8641 214.03 24 75 65 8.71 -10.37 170.9773 75.8641 107.53 25 65 80 -1.29 4.63 45.0023 1.6641 21.436 26 75 95 8.71 19.63 40.3273 75.8641 385.33 27 70 87.5 8.71 12.13 40.3273 13.7641 147.13 28 75 80 -1.29 4.63 -2.7477 75.8641 21.436 29 75 80 8.71 4.63 40.3273 75.8641 21.436 30 65 77.5 3.71 2.13 -1.3727 1.6641 4.536 31 75 80 8.71 4.63 83.8773 75.8641 21.436 32 70 75 8.71 -0.37 -1.3727 13.7641 0.136 32 70 75 </td <td>21</td> <td>75</td> <td>95</td> <td>8.71</td> <td>19.63</td> <td>127.4273</td> <td>75.8641</td> <td>385.3369</td>	21	75	95	8.71	19.63	127.4273	75.8641	385.3369
24 75 65 8.71 -10.37 170.9773 75.8641 107.53 25 65 80 -1.29 4.63 45.0023 1.6641 21.430 26 75 95 8.71 19.63 40.3273 75.8641 385.33 27 70 87.5 8.71 12.13 40.3273 13.7641 147.13 28 75 80 -1.29 4.63 -2.7477 75.8641 21.430 29 75 80 8.71 4.63 40.3273 75.8641 21.430 30 65 77.5 3.71 2.13 -1.3727 1.6641 4.536 31 75 80 8.71 4.63 83.8773 75.8641 21.430 32 70 75 8.71 -0.37 -1.3727 13.7641 0.136 33 75 85 -1.29 9.63 83.8773 75.8641 92.730 34 70 75 </td <td>22</td> <td>65</td> <td>90</td> <td>-1.29</td> <td>14.63</td> <td>-90.3227</td> <td>1.6641</td> <td>214.0369</td>	22	65	90	-1.29	14.63	-90.3227	1.6641	214.0369
25 65 80 -1.29 4.63 45.0023 1.6641 21.430 26 75 95 8.71 19.63 40.3273 75.8641 385.33 27 70 87.5 8.71 12.13 40.3273 13.7641 147.13 28 75 80 -1.29 4.63 -2.7477 75.8641 21.430 29 75 80 8.71 4.63 40.3273 75.8641 21.430 30 65 77.5 3.71 2.13 -1.3727 1.6641 4.536 31 75 80 8.71 4.63 83.8773 75.8641 21.430 32 70 75 8.71 -0.37 -1.3727 13.7641 0.136 33 75 85 -1.29 9.63 83.8773 75.8641 92.730 34 70 75 8.71 -0.37 13.3773 13.7641 0.136 35 75 85	23	75	90	8.71	14.63	-5.9727	75.8641	214.0369
26 75 95 8.71 19.63 40.3273 75.8641 385.33 27 70 87.5 8.71 12.13 40.3273 13.7641 147.13 28 75 80 -1.29 4.63 -2.7477 75.8641 21.436 29 75 80 8.71 4.63 40.3273 75.8641 21.436 30 65 77.5 3.71 2.13 -1.3727 1.6641 4.536 31 75 80 8.71 4.63 83.8773 75.8641 21.436 32 70 75 8.71 -0.37 -1.3727 13.7641 0.136 33 75 85 -1.29 9.63 83.8773 75.8641 92.730 34 70 75 8.71 -0.37 13.3773 13.7641 0.136 35 75 85 3.71 9.63 19.8273 75.8641 92.730 36 65 65	24	75	65	8.71	-10.37	170.9773	75.8641	107.5369
27 70 87.5 8.71 12.13 40.3273 13.7641 147.13 28 75 80 -1.29 4.63 -2.7477 75.8641 21.436 29 75 80 8.71 4.63 40.3273 75.8641 21.436 30 65 77.5 3.71 2.13 -1.3727 1.6641 4.536 31 75 80 8.71 4.63 83.8773 75.8641 21.436 32 70 75 8.71 -0.37 -1.3727 13.7641 0.136 33 75 85 -1.29 9.63 83.8773 75.8641 92.736 34 70 75 8.71 -0.37 13.3773 13.7641 0.136 35 75 85 3.71 9.63 19.8273 75.8641 92.736 36 65 65 8.71 -10.37 -39.3477 1.6641 107.53 37 65 60 <td>25</td> <td>65</td> <td>80</td> <td>-1.29</td> <td>4.63</td> <td>45.0023</td> <td>1.6641</td> <td>21.4369</td>	25	65	80	-1.29	4.63	45.0023	1.6641	21.4369
28 75 80 -1.29 4.63 -2.7477 75.8641 21.430 29 75 80 8.71 4.63 40.3273 75.8641 21.430 30 65 77.5 3.71 2.13 -1.3727 1.6641 4.536 31 75 80 8.71 4.63 83.8773 75.8641 21.430 32 70 75 8.71 -0.37 -1.3727 13.7641 0.136 33 75 85 -1.29 9.63 83.8773 75.8641 92.730 34 70 75 8.71 -0.37 13.3773 13.7641 0.136 35 75 85 3.71 9.63 19.8273 75.8641 92.730 36 65 65 8.71 -10.37 -39.3477 1.6641 107.53 37 65 60 3.71 -15.37 -52.2727 1.6641 236.23 38 80 72.5 <td>26</td> <td>75</td> <td>95</td> <td>8.71</td> <td>19.63</td> <td>40.3273</td> <td>75.8641</td> <td>385.3369</td>	26	75	95	8.71	19.63	40.3273	75.8641	385.3369
29 75 80 8.71 4.63 40.3273 75.8641 21.436 30 65 77.5 3.71 2.13 -1.3727 1.6641 4.536 31 75 80 8.71 4.63 83.8773 75.8641 21.436 32 70 75 8.71 -0.37 -1.3727 13.7641 0.136 33 75 85 -1.29 9.63 83.8773 75.8641 92.736 34 70 75 8.71 -0.37 13.3773 13.7641 0.136 35 75 85 3.71 9.63 19.8273 75.8641 92.736 36 65 65 8.71 -10.37 -39.3477 1.6641 107.53 37 65 60 3.71 -15.37 -52.2727 1.6641 107.53 38 80 72.5 8.71 -2.87 -1.3727 187.964 8.236 39 55 80 <td>27</td> <td>70</td> <td>87.5</td> <td>8.71</td> <td>12.13</td> <td>40.3273</td> <td>13.7641</td> <td>147.1369</td>	27	70	87.5	8.71	12.13	40.3273	13.7641	147.1369
30 65 77.5 3.71 2.13 -1.3727 1.6641 4.536 31 75 80 8.71 4.63 83.8773 75.8641 21.436 32 70 75 8.71 -0.37 -1.3727 13.7641 0.136 33 75 85 -1.29 9.63 83.8773 75.8641 92.736 34 70 75 8.71 -0.37 13.3773 13.7641 0.136 35 75 85 3.71 9.63 19.8273 75.8641 92.736 36 65 65 8.71 -10.37 -39.3477 1.6641 107.53 37 65 60 3.71 -15.37 -52.2727 1.6641 236.23 38 80 72.5 8.71 -2.87 -1.3727 187.964 8.236 39 55 80 -1.29 4.63 -15.6477 127.464 21.436 40 70 75 </td <td>28</td> <td>75</td> <td>80</td> <td>-1.29</td> <td>4.63</td> <td>-2.7477</td> <td>75.8641</td> <td>21.4369</td>	28	75	80	-1.29	4.63	-2.7477	75.8641	21.4369
31 75 80 8.71 4.63 83.8773 75.8641 21.436 32 70 75 8.71 -0.37 -1.3727 13.7641 0.136 33 75 85 -1.29 9.63 83.8773 75.8641 92.736 34 70 75 8.71 -0.37 13.3773 13.7641 0.136 35 75 85 3.71 9.63 19.8273 75.8641 92.736 36 65 65 8.71 -10.37 -39.3477 1.6641 107.53 37 65 60 3.71 -15.37 -52.2727 1.6641 236.23 38 80 72.5 8.71 -2.87 -1.3727 187.964 8.236 39 55 80 -1.29 4.63 -15.6477 127.464 21.436 40 70 75 13.71 -0.37 49.5023 13.7641 0.136 41 65 87.	29	75	80	8.71	4.63	40.3273	75.8641	21.4369
32 70 75 8.71 -0.37 -1.3727 13.7641 0.136 33 75 85 -1.29 9.63 83.8773 75.8641 92.736 34 70 75 8.71 -0.37 13.3773 13.7641 0.136 35 75 85 3.71 9.63 19.8273 75.8641 92.736 36 65 65 8.71 -10.37 -39.3477 1.6641 107.53 37 65 60 3.71 -15.37 -52.2727 1.6641 236.23 38 80 72.5 8.71 -2.87 -1.3727 187.964 8.236 39 55 80 -1.29 4.63 -15.6477 127.464 21.436 40 70 75 13.71 -0.37 49.5023 13.7641 0.136 41 65 87.5 -11.29 12.13 2.3273 1.6641 147.13 42 60	30	65	77.5	3.71	2.13	-1.3727	1.6641	4.5369
33 75 85 -1.29 9.63 83.8773 75.8641 92.736 34 70 75 8.71 -0.37 13.3773 13.7641 0.136 35 75 85 3.71 9.63 19.8273 75.8641 92.736 36 65 65 8.71 -10.37 -39.3477 1.6641 107.53 37 65 60 3.71 -15.37 -52.2727 1.6641 236.23 38 80 72.5 8.71 -2.87 -1.3727 187.964 8.236 39 55 80 -1.29 4.63 -15.6477 127.464 21.436 40 70 75 13.71 -0.37 49.5023 13.7641 0.136 41 65 87.5 -11.29 12.13 2.3273 1.6641 147.13 42 60 67.5 3.71 -7.87 13.3773 39.5641 61.936 43 60 <	31	75	80	8.71	4.63	83.8773	75.8641	21.4369
34 70 75 8.71 -0.37 13.3773 13.7641 0.136 35 75 85 3.71 9.63 19.8273 75.8641 92.736 36 65 65 8.71 -10.37 -39.3477 1.6641 107.53 37 65 60 3.71 -15.37 -52.2727 1.6641 236.23 38 80 72.5 8.71 -2.87 -1.3727 187.964 8.236 39 55 80 -1.29 4.63 -15.6477 127.464 21.436 40 70 75 13.71 -0.37 49.5023 13.7641 0.136 41 65 87.5 -11.29 12.13 2.3273 1.6641 147.13 42 60 67.5 3.71 -7.87 13.3773 39.5641 61.936 43 60 75 -1.29 -0.37 -10.6477 39.5641 0.136 44 65	32	70	75	8.71	-0.37	-1.3727	13.7641	0.1369
35 75 85 3.71 9.63 19.8273 75.8641 92.736 36 65 65 8.71 -10.37 -39.3477 1.6641 107.53 37 65 60 3.71 -15.37 -52.2727 1.6641 236.23 38 80 72.5 8.71 -2.87 -1.3727 187.964 8.236 39 55 80 -1.29 4.63 -15.6477 127.464 21.436 40 70 75 13.71 -0.37 49.5023 13.7641 0.136 41 65 87.5 -11.29 12.13 2.3273 1.6641 147.13 42 60 67.5 3.71 -7.87 13.3773 39.5641 61.936 43 60 75 -1.29 -0.37 -10.6477 39.5641 0.136 44 65 65 13.71 -10.37 18.5523 1.6641 107.53 45 70	33	75	85	-1.29	9.63	83.8773	75.8641	92.7369
36 65 65 8.71 -10.37 -39.3477 1.6641 107.53 37 65 60 3.71 -15.37 -52.2727 1.6641 236.23 38 80 72.5 8.71 -2.87 -1.3727 187.964 8.236 39 55 80 -1.29 4.63 -15.6477 127.464 21.436 40 70 75 13.71 -0.37 49.5023 13.7641 0.136 41 65 87.5 -11.29 12.13 2.3273 1.6641 147.13 42 60 67.5 3.71 -7.87 13.3773 39.5641 61.936 43 60 75 -1.29 -0.37 -10.6477 39.5641 0.136 44 65 65 13.71 -10.37 18.5523 1.6641 107.53 45 70 72.5 -11.29 -2.87 -9.1977 13.7641 8.236 46 75	34	70	75	8.71	-0.37	13.3773	13.7641	0.1369
37 65 60 3.71 -15.37 -52.2727 1.6641 236.23 38 80 72.5 8.71 -2.87 -1.3727 187.964 8.236 39 55 80 -1.29 4.63 -15.6477 127.464 21.436 40 70 75 13.71 -0.37 49.5023 13.7641 0.136 41 65 87.5 -11.29 12.13 2.3273 1.6641 147.13 42 60 67.5 3.71 -7.87 13.3773 39.5641 61.936 43 60 75 -1.29 -0.37 -10.6477 39.5641 0.136 44 65 65 13.71 -10.37 18.5523 1.6641 107.53 45 70 72.5 -11.29 -2.87 -9.1977 13.7641 8.236 46 75 77.5 3.71 2.13 -44.8477 75.8641 4.536 47 65	35	75	85	3.71	9.63	19.8273	75.8641	92.7369
38 80 72.5 8.71 -2.87 -1.3727 187.964 8.236 39 55 80 -1.29 4.63 -15.6477 127.464 21.436 40 70 75 13.71 -0.37 49.5023 13.7641 0.136 41 65 87.5 -11.29 12.13 2.3273 1.6641 147.13 42 60 67.5 3.71 -7.87 13.3773 39.5641 61.936 43 60 75 -1.29 -0.37 -10.6477 39.5641 0.136 44 65 65 13.71 -10.37 18.5523 1.6641 107.53 45 70 72.5 -11.29 -2.87 -9.1977 13.7641 8.236 46 75 77.5 3.71 2.13 -44.8477 75.8641 4.536 47 65 82.5 -1.29 7.13 -24.0477 1.6641 50.836	36	65	65	8.71	-10.37	-39.3477	1.6641	107.5369
39 55 80 -1.29 4.63 -15.6477 127.464 21.436 40 70 75 13.71 -0.37 49.5023 13.7641 0.136 41 65 87.5 -11.29 12.13 2.3273 1.6641 147.13 42 60 67.5 3.71 -7.87 13.3773 39.5641 61.936 43 60 75 -1.29 -0.37 -10.6477 39.5641 0.136 44 65 65 13.71 -10.37 18.5523 1.6641 107.53 45 70 72.5 -11.29 -2.87 -9.1977 13.7641 8.236 46 75 77.5 3.71 2.13 -44.8477 75.8641 4.536 47 65 82.5 -1.29 7.13 -24.0477 1.6641 50.836	37	65	60	3.71	-15.37	-52.2727	1.6641	236.2369
40 70 75 13.71 -0.37 49.5023 13.7641 0.136 41 65 87.5 -11.29 12.13 2.3273 1.6641 147.13 42 60 67.5 3.71 -7.87 13.3773 39.5641 61.936 43 60 75 -1.29 -0.37 -10.6477 39.5641 0.136 44 65 65 13.71 -10.37 18.5523 1.6641 107.53 45 70 72.5 -11.29 -2.87 -9.1977 13.7641 8.236 46 75 77.5 3.71 2.13 -44.8477 75.8641 4.536 47 65 82.5 -1.29 7.13 -24.0477 1.6641 50.836	38	80	72.5	8.71	-2.87	-1.3727	187.964	8.2369
41 65 87.5 -11.29 12.13 2.3273 1.6641 147.13 42 60 67.5 3.71 -7.87 13.3773 39.5641 61.930 43 60 75 -1.29 -0.37 -10.6477 39.5641 0.136 44 65 65 13.71 -10.37 18.5523 1.6641 107.53 45 70 72.5 -11.29 -2.87 -9.1977 13.7641 8.236 46 75 77.5 3.71 2.13 -44.8477 75.8641 4.536 47 65 82.5 -1.29 7.13 -24.0477 1.6641 50.836	39	55	80	-1.29	4.63	-15.6477	127.464	21.4369
42 60 67.5 3.71 -7.87 13.3773 39.5641 61.936 43 60 75 -1.29 -0.37 -10.6477 39.5641 0.136 44 65 65 13.71 -10.37 18.5523 1.6641 107.53 45 70 72.5 -11.29 -2.87 -9.1977 13.7641 8.236 46 75 77.5 3.71 2.13 -44.8477 75.8641 4.536 47 65 82.5 -1.29 7.13 -24.0477 1.6641 50.836	40	70	75	13.71	-0.37	49.5023	13.7641	0.1369
43 60 75 -1.29 -0.37 -10.6477 39.5641 0.136 44 65 65 13.71 -10.37 18.5523 1.6641 107.53 45 70 72.5 -11.29 -2.87 -9.1977 13.7641 8.236 46 75 77.5 3.71 2.13 -44.8477 75.8641 4.536 47 65 82.5 -1.29 7.13 -24.0477 1.6641 50.836	41	65	87.5	-11.29	12.13	2.3273	1.6641	147.1369
44 65 65 13.71 -10.37 18.5523 1.6641 107.53 45 70 72.5 -11.29 -2.87 -9.1977 13.7641 8.236 46 75 77.5 3.71 2.13 -44.8477 75.8641 4.536 47 65 82.5 -1.29 7.13 -24.0477 1.6641 50.836	42	60	67.5	3.71	-7.87	13.3773	39.5641	61.9369
45 70 72.5 -11.29 -2.87 -9.1977 13.7641 8.236 46 75 77.5 3.71 2.13 -44.8477 75.8641 4.536 47 65 82.5 -1.29 7.13 -24.0477 1.6641 50.836	43	60	75	-1.29	-0.37	-10.6477	39.5641	0.1369
46 75 77.5 3.71 2.13 -44.8477 75.8641 4.536 47 65 82.5 -1.29 7.13 -24.0477 1.6641 50.836	44	65	65	13.71	-10.37	18.5523	1.6641	107.5369
47 65 82.5 -1.29 7.13 -24.0477 1.6641 50.836	45	70	72.5	-11.29	-2.87	-9.1977	13.7641	8.2369
	46	75	77.5	3.71	2.13	-44.8477	75.8641	4.5369
48 60 82.5 -6.29 7.13 7.9023 39.5641 50.836	47	65	82.5	-1.29	7.13	-24.0477	1.6641	50.8369
	48	60	82.5	-6.29	7.13	7.9023	39.5641	50.8369

Continuing Table 4.6. Working Table of Analyzing the Correlation

49 55 77.5 -6.29 2.13 26.4523 127.464 4.5369 50 70 77.5 -1.29 2.13 26.4523 13.7641 4.5369 51 70 82.5 3.71 7.13 -136.948 13.7641 50.8369 52 70 82.5 8.71 7.13 -10.6477 13.7641 50.8369 53 55 87.5 -1.29 12.13 87.4773 127.464 147.1369 54 70 72.5 -6.29 -2.87 23.0523 13.7641 8.2369 55 50 70 -11.29 -5.37 26.4523 265.364 28.8369 56 65 57.5 3.71 -17.87 -10.6477 1.6641 319.3369 57 70 82.5 3.71 -7.13 -29.1977 13.7641 8.2369 58 70 72.5 3.71 -5.37 -57.0227 13.7641 8.2369 59								
51 70 82.5 3.71 7.13 -136.948 13.7641 50.8369 52 70 82.5 8.71 7.13 -10.6477 13.7641 50.8369 53 55 87.5 -1.29 12.13 87.4773 127.464 147.1369 54 70 72.5 -6.29 -2.87 23.0523 13.7641 8.2369 55 50 70 -11.29 -5.37 26.4523 265.364 28.8369 56 65 57.5 3.71 -17.87 -10.6477 1.6641 319.3369 57 70 82.5 3.71 -7.87 120.477 13.7641 50.8369 58 70 72.5 3.71 -2.87 -5.0227 13.7641 82.369 59 70 67.5 -11.29 -7.87 127.4273 13.7641 82.369 60 70 60 3.71 -15.37 -10.6477 13.7641 82.32369 61	49	55	77.5	-6.29	2.13	26.4523	127.464	4.5369
52 70 82.5 8.71 7.13 -10.6477 13.7641 50.8369 53 55 87.5 -1.29 12.13 87.4773 127.464 147.1369 54 70 72.5 -6.29 -2.87 23.0523 13.7641 8.2369 55 50 70 -11.29 -5.37 26.4523 265.364 28.8369 56 65 57.5 3.71 -17.87 -10.6477 1.6641 319.3369 57 70 82.5 3.71 7.13 -29.1977 13.7641 50.8369 58 70 72.5 3.71 -2.87 -57.0227 13.7641 8.2369 59 70 67.5 -11.29 -7.87 127.4273 13.7641 61.9369 60 70 60 3.71 -15.37 -10.6477 13.7641 61.9369 61 75 90 -16.29 14.63 -66.2977 75.8641 214.0369 61 </td <td>50</td> <td>70</td> <td>77.5</td> <td>-1.29</td> <td>2.13</td> <td>26.4523</td> <td>13.7641</td> <td>4.5369</td>	50	70	77.5	-1.29	2.13	26.4523	13.7641	4.5369
53 55 87.5 -1.29 12.13 87.4773 127.464 147.1369 54 70 72.5 -6.29 -2.87 23.0523 13.7641 8.2369 55 50 70 -11.29 -5.37 26.4523 265.364 28.8369 56 65 57.5 3.71 -17.87 -10.6477 1.6641 319.3369 57 70 82.5 3.71 7.13 -29.1977 13.7641 50.8369 58 70 72.5 3.71 -2.87 -57.0227 13.7641 8.2369 59 70 67.5 -11.29 -7.87 127.4273 13.7641 61.9369 60 70 60 3.71 -15.37 -10.6477 13.7641 216.9369 61 75 90 -16.29 14.63 -66.2977 75.8641 214.0369 62 70 72.5 -1.29 -2.87 7.9023 13.7641 81.9369 81<	51	70	82.5	3.71	7.13	-136.948	13.7641	50.8369
54 70 72.5 -6.29 -2.87 23.0523 13.7641 8.2369 55 50 70 -11.29 -5.37 26.4523 265.364 28.8369 56 65 57.5 3.71 -17.87 -10.6477 1.6641 319.3369 57 70 82.5 3.71 7.13 -29.1977 13.7641 50.8369 58 70 72.5 3.71 -2.87 -57.0227 13.7641 8.2369 59 70 67.5 -11.29 -7.87 127.4273 13.7641 61.9369 60 70 60 3.71 -15.37 -10.6477 13.7641 236.2369 61 75 90 -16.29 14.63 -66.2977 75.8641 214.0369 62 70 72.5 -1.29 -2.87 7.9023 13.7641 8.2369 81 70 67.5 3.71 -7.87 201.7523 13.7641 319.3369 82 </td <td>52</td> <td>70</td> <td>82.5</td> <td>8.71</td> <td>7.13</td> <td>-10.6477</td> <td>13.7641</td> <td>50.8369</td>	52	70	82.5	8.71	7.13	-10.6477	13.7641	50.8369
55 50 70 -11.29 -5.37 26.4523 265.364 28.8369 56 65 57.5 3.71 -17.87 -10.6477 1.6641 319.3369 57 70 82.5 3.71 7.13 -29.1977 13.7641 50.8369 58 70 72.5 3.71 -2.87 -57.0227 13.7641 8.2369 59 70 67.5 -11.29 -7.87 127.4273 13.7641 61.9369 60 70 60 3.71 -15.37 -10.6477 13.7641 236.2369 61 75 90 -16.29 14.63 -66.2977 75.8641 214.0369 62 70 72.5 -1.29 -2.87 7.9023 13.7641 82369 63 70 57.5 3.71 -17.87 87.4773 13.7641 819.3369 81 70 67.5 3.71 -7.87 201.7523 13.7641 61.9369 82 </td <td>53</td> <td>55</td> <td>87.5</td> <td>-1.29</td> <td>12.13</td> <td>87.4773</td> <td>127.464</td> <td>147.1369</td>	53	55	87.5	-1.29	12.13	87.4773	127.464	147.1369
56 65 57.5 3.71 -17.87 -10.6477 1.6641 319.3369 57 70 82.5 3.71 7.13 -29.1977 13.7641 50.8369 58 70 72.5 3.71 -2.87 -57.0227 13.7641 8.2369 59 70 67.5 -11.29 -7.87 127.4273 13.7641 61.9369 60 70 60 3.71 -15.37 -10.6477 13.7641 236.2369 61 75 90 -16.29 14.63 -66.2977 75.8641 214.0369 62 70 72.5 -1.29 -2.87 7.9023 13.7641 8.2369 63 70 57.5 3.71 -17.87 87.4773 13.7641 319.3369 81 70 67.5 3.71 -7.87 201.7523 13.7641 61.9369 82 50 90 3.71 14.63 62.1023 265.364 214.0369 83 </td <td>54</td> <td>70</td> <td>72.5</td> <td>-6.29</td> <td>-2.87</td> <td>23.0523</td> <td>13.7641</td> <td>8.2369</td>	54	70	72.5	-6.29	-2.87	23.0523	13.7641	8.2369
57 70 82.5 3.71 7.13 -29.1977 13.7641 50.8369 58 70 72.5 3.71 -2.87 -57.0227 13.7641 8.2369 59 70 67.5 -11.29 -7.87 127.4273 13.7641 61.9369 60 70 60 3.71 -15.37 -10.6477 13.7641 236.2369 61 75 90 -16.29 14.63 -66.2977 75.8641 214.0369 62 70 72.5 -1.29 -2.87 7.9023 13.7641 8.2369 63 70 57.5 3.71 -17.87 87.4773 13.7641 319.3369 81 70 67.5 3.71 -7.87 201.7523 13.7641 61.9369 82 50 90 3.71 14.63 62.1023 265.364 214.0369 83 55 70 3.71 -5.37 -76.2977 127.464 28.8369 84	55	50	70	-11.29	-5.37	26.4523	265.364	28.8369
58 70 72.5 3.71 -2.87 -57.0227 13.7641 8.2369 59 70 67.5 -11.29 -7.87 127.4273 13.7641 61.9369 60 70 60 3.71 -15.37 -10.6477 13.7641 236.2369 61 75 90 -16.29 14.63 -66.2977 75.8641 214.0369 62 70 72.5 -1.29 -2.87 7.9023 13.7641 82369 63 70 57.5 3.71 -17.87 87.4773 13.7641 319.3369 81 70 67.5 3.71 -7.87 201.7523 13.7641 61.9369 82 50 90 3.71 14.63 62.1023 265.364 214.0369 83 55 70 3.71 -5.37 -76.2977 127.464 28.8369 84 75 85 8.71 9.63 367.2773 75.8641 92.7369 85	56	65	57.5	3.71	-17.87	-10.6477	1.6641	319.3369
59 70 67.5 -11.29 -7.87 127.4273 13.7641 61.9369 60 70 60 3.71 -15.37 -10.6477 13.7641 236.2369 61 75 90 -16.29 14.63 -66.2977 75.8641 214.0369 62 70 72.5 -1.29 -2.87 7.9023 13.7641 82.369 63 70 57.5 3.71 -17.87 87.4773 13.7641 319.3369 81 70 67.5 3.71 -7.87 201.7523 13.7641 61.9369 82 50 90 3.71 14.63 62.1023 265.364 214.0369 83 55 70 3.71 -5.37 -76.2977 127.464 28.8369 84 75 85 8.71 9.63 367.2773 75.8641 92.7369 85 60 75 3.71 -17.87 274.0023 350.064 319.3369 87	57	70	82.5	3.71	7.13	-29.1977	13.7641	50.8369
60 70 60 3.71 -15.37 -10.6477 13.7641 236.2369 61 75 90 -16.29 14.63 -66.2977 75.8641 214.0369 62 70 72.5 -1.29 -2.87 7.9023 13.7641 82.369 63 70 57.5 3.71 -17.87 87.4773 13.7641 319.3369 81 70 67.5 3.71 -7.87 201.7523 13.7641 61.9369 82 50 90 3.71 14.63 62.1023 265.364 214.0369 83 55 70 3.71 -5.37 -76.2977 127.464 28.8369 84 75 85 8.71 9.63 367.2773 75.8641 92.7369 85 60 75 3.71 -0.37 88.8523 39.5641 0.1369 86 85 57.5 3.71 -7.87 62.1023 127.464 61.9369 87	58	70	72.5	3.71	-2.87	-57.0227	13.7641	8.2369
61 75 90 -16.29 14.63 -66.2977 75.8641 214.0369 62 70 72.5 -1.29 -2.87 7.9023 13.7641 8.2369 63 70 57.5 3.71 -17.87 87.4773 13.7641 319.3369 81 70 67.5 3.71 -7.87 201.7523 13.7641 61.9369 82 50 90 3.71 14.63 62.1023 265.364 214.0369 83 55 70 3.71 -5.37 -76.2977 127.464 28.8369 84 75 85 8.71 9.63 367.2773 75.8641 92.7369 85 60 75 3.71 -0.37 88.8523 39.5641 0.1369 86 85 57.5 3.71 -7.87 274.0023 350.064 319.3369 87 55 67.5 3,71 -7.87 286.4273 453.264 61.9369 89	59	70	67.5	-11.29	-7.87	127.4273	13.7641	61.9369
62 70 72.5 -1.29 -2.87 7.9023 13.7641 8.2369 63 70 57.5 3.71 -17.87 87.4773 13.7641 319.3369 81 70 67.5 3.71 -7.87 201.7523 13.7641 61.9369 82 50 90 3.71 14.63 62.1023 265.364 214.0369 83 55 70 3.71 -5.37 -76.2977 127.464 28.8369 84 75 85 8.71 9.63 367.2773 75.8641 92.7369 85 60 75 3.71 -0.37 88.8523 39.5641 0.1369 86 85 57.5 3.71 -17.87 274.0023 350.064 319.3369 87 55 67.5 3,71 -7.87 286.4273 453.264 61.9369 88 55 67.5 -11.29 -17.87 17.1773 75.8641 319.3369 90	60	70	60	3.71	-15.37	-10.6477	13.7641	236.2369
63 70 57.5 3.71 -17.87 87.4773 13.7641 319.3369 81 70 67.5 3.71 -7.87 201.7523 13.7641 61.9369 82 50 90 3.71 14.63 62.1023 265.364 214.0369 83 55 70 3.71 -5.37 -76.2977 127.464 28.8369 84 75 85 8.71 9.63 367.2773 75.8641 92.7369 85 60 75 3.71 -0.37 88.8523 39.5641 0.1369 86 85 57.5 3.71 -17.87 274.0023 350.064 319.3369 87 55 67.5 3,71 -7.87 62.1023 127.464 61.9369 88 55 67.5 3,71 -7.87 286.4273 453.264 61.9369 89 55 57.5 -11.29 -17.87 17.1773 75.8641 319.3369 90	61	75	90	-16.29	14.63	-66.2977	75.8641	214.0369
81 70 67.5 3.71 -7.87 201.7523 13.7641 61.9369 82 50 90 3.71 14.63 62.1023 265.364 214.0369 83 55 70 3.71 -5.37 -76.2977 127.464 28.8369 84 75 85 8.71 9.63 367.2773 75.8641 92.7369 85 60 75 3.71 -0.37 88.8523 39.5641 0.1369 86 85 57.5 3.71 -17.87 274.0023 350.064 319.3369 87 55 67.5 3,71 -7.87 62.1023 127.464 61.9369 88 55 67.5 -16.29 -7.87 286.4273 453.264 61.9369 89 55 57.5 -11.29 -17.87 17.1773 75.8641 319.3369 90 75 75 8.71 -0.37 -90.3227 127.464 0.1369 91	62	70	72.5	-1.29	-2.87	7.9023	13.7641	8.2369
82 50 90 3.71 14.63 62.1023 265.364 214.0369 83 55 70 3.71 -5.37 -76.2977 127.464 28.8369 84 75 85 8.71 9.63 367.2773 75.8641 92.7369 85 60 75 3.71 -0.37 88.8523 39.5641 0.1369 86 85 57.5 3.71 -17.87 274.0023 350.064 319.3369 87 55 67.5 3,71 -7.87 62.1023 127.464 61.9369 88 55 67.5 -16.29 -7.87 286.4273 453.264 61.9369 89 55 57.5 -11.29 -17.87 17.1773 75.8641 319.3369 90 75 75 8.71 -0.37 -90.3227 127.464 0.1369 91 45 52.5 -6.29 -22.87 -47.7477 13.7641 523.0369 92	63	70	57.5	3.71	-17.87	87.4773	13.7641	319.3369
83 55 70 3.71 -5.37 -76.2977 127.464 28.8369 84 75 85 8.71 9.63 367.2773 75.8641 92.7369 85 60 75 3.71 -0.37 88.8523 39.5641 0.1369 86 85 57.5 3.71 -17.87 274.0023 350.064 319.3369 87 55 67.5 3,71 -7.87 62.1023 127.464 61.9369 88 55 67.5 -16.29 -7.87 286.4273 453.264 61.9369 89 55 57.5 -11.29 -17.87 17.1773 75.8641 319.3369 90 75 75 8.71 -0.37 -90.3227 127.464 0.1369 91 45 52.5 -6.29 -22.87 -47.7477 13.7641 523.0369 92 55 62.5 18.71 -12.87 -52.2727 75.8641 165.6369 93<	81	70	67.5	3.71	-7.87	201.7523	13.7641	61.9369
84 75 85 8.71 9.63 367.2773 75.8641 92.7369 85 60 75 3.71 -0.37 88.8523 39.5641 0.1369 86 85 57.5 3.71 -17.87 274.0023 350.064 319.3369 87 55 67.5 3,71 -7.87 62.1023 127.464 61.9369 88 55 67.5 -16.29 -7.87 286.4273 453.264 61.9369 89 55 57.5 -11.29 -17.87 17.1773 75.8641 319.3369 90 75 75 8.71 -0.37 -90.3227 127.464 0.1369 91 45 52.5 -6.29 -22.87 -47.7477 13.7641 523.0369 92 55 62.5 18.71 -12.87 -52.2727 75.8641 165.6369 93 85 60 -11.29 -15.37 29.5023 13.7641 236.2369	82	50	90	3.71	14.63	62.1023	265.364	214.0369
85 60 75 3.71 -0.37 88.8523 39.5641 0.1369 86 85 57.5 3.71 -17.87 274.0023 350.064 319.3369 87 55 67.5 3,71 -7.87 62.1023 127.464 61.9369 88 55 67.5 -16.29 -7.87 286.4273 453.264 61.9369 89 55 57.5 -11.29 -17.87 17.1773 75.8641 319.3369 90 75 75 8.71 -0.37 -90.3227 127.464 0.1369 91 45 52.5 -6.29 -22.87 -47.7477 13.7641 523.0369 92 55 62.5 18.71 -12.87 -52.2727 75.8641 165.6369 93 85 60 -11.29 -15.37 29.5023 13.7641 236.2369 94 75 87.5 -21.29 12.13 559.1523 127.464 147.1369	83	55	70	3.71	-5.37	-76.2977	127.464	28.8369
86 85 57.5 3.71 -17.87 274.0023 350.064 319.3369 87 55 67.5 3,71 -7.87 62.1023 127.464 61.9369 88 55 67.5 -16.29 -7.87 286.4273 453.264 61.9369 89 55 57.5 -11.29 -17.87 17.1773 75.8641 319.3369 90 75 75 8.71 -0.37 -90.3227 127.464 0.1369 91 45 52.5 -6.29 -22.87 -47.7477 13.7641 523.0369 92 55 62.5 18.71 -12.87 -52.2727 75.8641 165.6369 93 85 60 -11.29 -15.37 29.5023 13.7641 236.2369 94 75 87.5 -21.29 12.13 559.1523 127.464 147.1369 95 80 85 8.71 9.63 486.9023 1.6641 92.7369	84	75	85	8.71	9.63	367.2773	75.8641	92.7369
87 55 67.5 3,71 -7.87 62.1023 127.464 61.9369 88 55 67.5 -16.29 -7.87 286.4273 453.264 61.9369 89 55 57.5 -11.29 -17.87 17.1773 75.8641 319.3369 90 75 75 8.71 -0.37 -90.3227 127.464 0.1369 91 45 52.5 -6.29 -22.87 -47.7477 13.7641 523.0369 92 55 62.5 18.71 -12.87 -52.2727 75.8641 165.6369 93 85 60 -11.29 -15.37 29.5023 13.7641 236.2369 94 75 87.5 -21.29 12.13 559.1523 127.464 147.1369 95 80 85 8.71 9.63 486.9023 1.6641 92.7369 96 70 67.5 -11.29 -7.87 -186.598 979.064 61.9369	85	60	75	3.71	-0.37	88.8523	39.5641	0.1369
88 55 67.5 -16.29 -7.87 286.4273 453.264 61.9369 89 55 57.5 -11.29 -17.87 17.1773 75.8641 319.3369 90 75 75 8.71 -0.37 -90.3227 127.464 0.1369 91 45 52.5 -6.29 -22.87 -47.7477 13.7641 523.0369 92 55 62.5 18.71 -12.87 -52.2727 75.8641 165.6369 93 85 60 -11.29 -15.37 29.5023 13.7641 236.2369 94 75 87.5 -21.29 12.13 559.1523 127.464 147.1369 95 80 85 8.71 9.63 486.9023 1.6641 92.7369 96 70 67.5 -11.29 -7.87 -186.598 979.064 61.9369 97 60 82.5 3.71 7.13 200.5773 453.264 50.8369	86	85	57.5	3.71	-17.87	274.0023	350.064	319.3369
89 55 57.5 -11.29 -17.87 17.1773 75.8641 319.3369 90 75 75 8.71 -0.37 -90.3227 127.464 0.1369 91 45 52.5 -6.29 -22.87 -47.7477 13.7641 523.0369 92 55 62.5 18.71 -12.87 -52.2727 75.8641 165.6369 93 85 60 -11.29 -15.37 29.5023 13.7641 236.2369 94 75 87.5 -21.29 12.13 559.1523 127.464 147.1369 95 80 85 8.71 9.63 486.9023 1.6641 92.7369 96 70 67.5 -11.29 -7.87 -186.598 979.064 61.9369 97 60 82.5 3.71 7.13 200.5773 453.264 50.8369 98 50 75 8.71 -0.37 60.6273 562.164 0.1369	87	55	67.5	3,71	-7.87	62.1023	127.464	61.9369
90 75 75 8.71 -0.37 -90.3227 127.464 0.1369 91 45 52.5 -6.29 -22.87 -47.7477 13.7641 523.0369 92 55 62.5 18.71 -12.87 -52.2727 75.8641 165.6369 93 85 60 -11.29 -15.37 29.5023 13.7641 236.2369 94 75 87.5 -21.29 12.13 559.1523 127.464 147.1369 95 80 85 8.71 9.63 486.9023 1.6641 92.7369 96 70 67.5 -11.29 -7.87 -186.598 979.064 61.9369 97 60 82.5 3.71 7.13 200.5773 453.264 50.8369 98 50 75 8.71 -0.37 60.6273 562.164 0.1369 99 80 65 3.71 -10.37 -12.4227 187.964 107.5369	88	55	67.5	-16.29	-7.87	286.4273	453.264	61.9369
91 45 52.5 -6.29 -22.87 -47.7477 13.7641 523.0369 92 55 62.5 18.71 -12.87 -52.2727 75.8641 165.6369 93 85 60 -11.29 -15.37 29.5023 13.7641 236.2369 94 75 87.5 -21.29 12.13 559.1523 127.464 147.1369 95 80 85 8.71 9.63 486.9023 1.6641 92.7369 96 70 67.5 -11.29 -7.87 -186.598 979.064 61.9369 97 60 82.5 3.71 7.13 200.5773 453.264 50.8369 98 50 75 8.71 -0.37 60.6273 562.164 0.1369 99 80 65 3.71 -10.37 -12.4227 187.964 107.5369	89	55	57.5	-11.29	-17.87	17.1773	75.8641	319.3369
92 55 62.5 18.71 -12.87 -52.2727 75.8641 165.6369 93 85 60 -11.29 -15.37 29.5023 13.7641 236.2369 94 75 87.5 -21.29 12.13 559.1523 127.464 147.1369 95 80 85 8.71 9.63 486.9023 1.6641 92.7369 96 70 67.5 -11.29 -7.87 -186.598 979.064 61.9369 97 60 82.5 3.71 7.13 200.5773 453.264 50.8369 98 50 75 8.71 -0.37 60.6273 562.164 0.1369 99 80 65 3.71 -10.37 -12.4227 187.964 107.5369	90	75	75	8.71	-0.37	-90.3227	127.464	0.1369
93 85 60 -11.29 -15.37 29.5023 13.7641 236.2369 94 75 87.5 -21.29 12.13 559.1523 127.464 147.1369 95 80 85 8.71 9.63 486.9023 1.6641 92.7369 96 70 67.5 -11.29 -7.87 -186.598 979.064 61.9369 97 60 82.5 3.71 7.13 200.5773 453.264 50.8369 98 50 75 8.71 -0.37 60.6273 562.164 0.1369 99 80 65 3.71 -10.37 -12.4227 187.964 107.5369	91	45	52.5	-6.29	-22.87	-47.7477	13.7641	523.0369
94 75 87.5 -21.29 12.13 559.1523 127.464 147.1369 95 80 85 8.71 9.63 486.9023 1.6641 92.7369 96 70 67.5 -11.29 -7.87 -186.598 979.064 61.9369 97 60 82.5 3.71 7.13 200.5773 453.264 50.8369 98 50 75 8.71 -0.37 60.6273 562.164 0.1369 99 80 65 3.71 -10.37 -12.4227 187.964 107.5369	92	55	62.5	18.71	-12.87	-52.2727	75.8641	165.6369
95 80 85 8.71 9.63 486.9023 1.6641 92.7369 96 70 67.5 -11.29 -7.87 -186.598 979.064 61.9369 97 60 82.5 3.71 7.13 200.5773 453.264 50.8369 98 50 75 8.71 -0.37 60.6273 562.164 0.1369 99 80 65 3.71 -10.37 -12.4227 187.964 107.5369	93	85	60	-11.29	-15.37	29.5023	13.7641	236.2369
96 70 67.5 -11.29 -7.87 -186.598 979.064 61.9369 97 60 82.5 3.71 7.13 200.5773 453.264 50.8369 98 50 75 8.71 -0.37 60.6273 562.164 0.1369 99 80 65 3.71 -10.37 -12.4227 187.964 107.5369	94	75	87.5	-21.29	12.13	559.1523	127.464	147.1369
97 60 82.5 3.71 7.13 200.5773 453.264 50.8369 98 50 75 8.71 -0.37 60.6273 562.164 0.1369 99 80 65 3.71 -10.37 -12.4227 187.964 107.5369	95	80	85	8.71	9.63	486.9023	1.6641	92.7369
98 50 75 8.71 -0.37 60.6273 562.164 0.1369 99 80 65 3.71 -10.37 -12.4227 187.964 107.5369	96			44.00	7 07	-186 598	979.064	61,9369
99 80 65 3.71 -10.37 -12.4227 187.964 107.5369	97	70	67.5	-11.29	-7.67	100.550		02.000
					-			1
100 80 90 -11.29 14.63 0.4773 127.464 214.0369	98	60	82.5	3.71	7.13	200.5773	453.264	50.8369
		60 50	82.5 75	3.71 8.71	7.13 -0.37	200.5773 60.6273	453.264 562.164	50.8369 0.1369
101 45 62.5 -1.29 -12.87 201.7523 1.6641 165.6369	99	60 50 80	82.5 75 65	3.71 8.71 3.71	7.13 -0.37 -10.37	200.5773 60.6273 -12.4227	453.264 562.164 187.964	50.8369 0.1369 107.5369

N= 108	ΣX= 7160	ΣY= 8140			∑xy= 5148.148	Σx²= 11968.52	Σy ² = 14222.7
108	70	95	1.29	19.63	72.8273	13.7641	385.3369
107	65	85	1.29	9.63	-12.4227	1.6641	92.7369
106	40	85	-11.29	9.63	-253.173	691.164	92.7369
105	70	67.5	13.71	-7.87	-29.1977	13.7641	61.9369
104	65	82.5	23.71	7.13	-9.1977	1.6641	50.8369
103	55	62.5	-21.29	-12.87	145.3023	127.464	165.6369
102	45	47.5	-31.29	-27.87	593.3523	1.6641	776.7369

Continuing Table 4.6. Working Table of Analyzing the Correlation

Then, the writer determines the degree of r_{xy} by implementing formula as follows:

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

Where:

: Coefficient correlation variables x and y r_{xy}

 $\sum xy$: The amount of multiplication between variable x and y

 $\sum x^2$: Deviation of x

 $\sum y^2$: Deviation of y

Finally, from the working table. it can be known that:

 $\sum xy : 5148.148$

 $\sum x^2 : 11968.52$

 $\sum y^2 : 14222.7$

So.
$$r_{xy} = \frac{5148.148}{\sqrt{(11968.52)(14222.7)}}$$
$$= 0.394584$$

2. To test hypothesis

After presenting the data, the writer analyzes all obtained data to give some consideration on the research.

a. vocabulary mastery test of the students at the fourth semester in English
 Department IAIN Antasari in academic year 2012/2013

The presented data on the previous subchapter show that the most of students are in Excellent level 12.03%. 39. 81% in good level. 25% in sufficient level. But there are 16.66% students' who are in low level. 5,55% in very low level. And 0.92% get poor level.

Thus, the total score of student' vocabulary mastery is 71.60 from 108 students and the mean score is 66.29.

b. from the result of listening test of the students at the fourth semester in
 English Department IAIN Antasari in academic year 2012/2013

The presented data on the previous subchapter show that the most of students are in Excellent level 46.29% . 21. 29% in good level. 22.22% in sufficient level. But there are 9.25% students' who are in low level. 0.92 % in very low level. However no one get poor level.

Thus, the total score of student' listening skill is 8.140 from 108 students and the mean score is 75.37.

a. Correlation between students vocabulary mastery and listening skill.

Based on the counting above, r_{xy} is 0, 394. By looking at table of coefficient correlation degree of Person Product Moment, it can be known whether there is a significant correlation or not.

For the formula d.b = N-2. So. d.b = 108-2 = 106. For N = 106 r table in 5% is 0.195 and r table in 1 % is 0. 254

So. it appears the result that $0.195 < r_{xy} > 0.254$. So, It appears the result that $0.195 < r_{xy} > 0.254$. It means that the null hypothesis (H_o) is denied and the hypothesis alternative (H_a) is accepted. So, it can be concluded that there is a significant correlation between students vocabulary mastery and listening skill. According to Standard Classification of Correlation, the degree of correlation is positive and occurs in 0.20 - < 0.40 level. It can be stated that the correlation between vocabulary mastery and listening skill is low category.