POLITEKNIK MERLIMAU MELAKA

DEVELOPMENT A SIMPLE PROGRAM TO CALCULATE STANDARD DEVIATION AND VARIANCE

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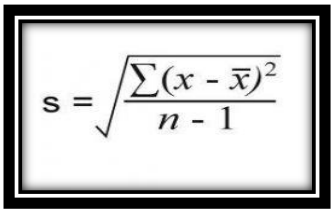
CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

In probability and statistics, the standard deviation of the probability distribution of the random variables or population or a lot of set value is a measure of the dispersion value. It is often represented with the letter σ (lowercase sigma It is defined as the square root. To understand standard deviation, bear in mind that the variance is the average of the squared difference point data with min. Standard deviation, which is the square root of the quantity, then measures the dispersion data on a min, measured with the same units with the data.

Generally, the standard deviation is the root mean squared deviation of the value of their arithmetic mean. For example, in a population of {4, 8}, min is 6 and the deviation from the mean is $\{-2, 2\}$. The deviation and became power of two{4, 4}, average (variance) is 4. Thus, the standard deviation is 1. In this case, 100% value in the population is at one standard deviation, standard deviation, min measurement is common to the dispersion measure its width value in a set of data. If most of the data points close to the mean, then the standard deviation is small,If many data points are far from the mean, then the standard deviation, is great. If all data is the same, then the standard deviation is zero.For a population, the standard deviation can be estimated by modifying standard deviation (s) for samples. The formula is given below.

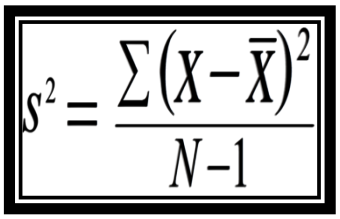


$$s = \sqrt{\frac{\sum(x - \bar{x})^2}{n - 1}}$$

Figure 1.1:Formulae of standard deviation

In probability theory and statistics, the variance is a conflict of expectations in the context of a random variable. Each random variable has a value expectation. Of variance introduced in order to explain how the value is distributed (or grouped) between anticipated. Therefore the variance is obtained by adding the value of squared differences between individual values (observed) values and expectations. This means that the value of the variance is always positive. For example, if a coin is tossed twice, the number getting head is 0: with probability 0.25, 0.5 and 1 with 2 probability with probability 0.25. Therefore the variance is $0.25 \times (0 - 1)\ 2 + 0.5 \times (1 - 1)\ 2 + 0.25 \times (2 - 1)\ 2 = 0.25 + 0 + 0.25 = 0.5$. Variance can be power of two (√) to get the standard deviation.

The term variance was first introduced by Ronald Fisher in his work in 1918 entitled The Correlation Between Relatives on the Supposition of Mendelian Inheritance. The use of variance and standard deviation is to obtain the degree of revenue data observations that much.



$$s^2 = \frac{\sum\left(X - \bar{X}\right)^2}{N - 1}$$

Figure 1.2:Formulae of variance

Notes:

- S^2 -varians
- S - Standart deviation
- $\sum(\bar{x}\text{-}x)^2$ –sum of residual
- N – observation

1.2 PROBLEM STATEMENT

In this study a subject or course adjustments, variance and standard deviation calculated from a set of observations extensive survey work. Therefore, students need a long time to get the variance and standard deviation if using manual calculation methods. Students often make mistakes in getting the variance and standard deviation in the manual calculation method.

Earlier studies have been conducted to prove the problem exists among students taking the course survey adjustment. The study analysis found that 72% of students who have taken the survey of adjustment difficult to memorize formulas related subject only to adjustment. In addition, 79% found that students take longer to calculate the standard deviation and variance. The third problem has been found no program to calculate the standard deviation and variance of the questionnaire and also found no student ever find a program to calculate the variance and standard deviation and all students expect to have a program that will be developed to calculate the variance and standard deviation.

It is expected that the VSd program will be developed that is able to assist students in obtaining the variance and differences in standards deviation without need to memorize formulas and to save calculation time. VSD program that will be developed is also expected to help the students to obtain the variance and standard deviation easily and minimize error.

1.3 OBJECTIVE

a) a) to develop a program that is based on Microsoft Excel to determine the variance and standard deviation.

b) to save time calculations and help students who have taken the survey of adjustment.

1.4 STUDY SCOPE

The scope of this study emphasize to students, especially students Politeknik Merlimau in Diploma Land Surveying and Geomatic who has taken the survey of adjustment.

CHAPTER TWO

LITERATURE REVIEW

Refer to the study titled development of physical learning programs using Microsoft Excel 2010 in the main policy rate and momentum (Dwi Kurnia Nugroho, 2015) which aims to determine the steps that have been prepared based learning program Microsoft Excel 2010 on the subject of pulses and momentum, as well as knowing the possibility of study programmes have been developed. This study is to gather all the programme refers to the model of development which is ADDIE analysis, design, development, implementation and evaluation. The program is then tested by program experts and users to test the force test viability based on the criteria.

Research data management based on Microsoft excel (Dr Azmi Mohd Tamil, 2000) which aims to make the test statistic can be done using Microsoft excel. However it is difficult to do the tests in comparison to excel for statistic software such as SPSS EpiInfo. This study would like to test the hypothesis "mothers in the control group had a first trimester weight more compared with mothers in the Group case". Cases and controls specified in a variable GROUP and group cases are coded.

Refers to the study design analysis of reinforced soil walls (Kim Tan Soon, 2009). One method to create a spreadsheet using Microsoft Excel program to speed up the process of analysis and design. A spreadsheet program is a tool for the design of structures involving recurring calculations. However this program should be examined by the calculation manually to avoid errors. The goal of this project is to develop a program for analysis and design of reinforced soil walls by the rear wedge method for binding the reinforcement of flexible and gravity method for rigid reinforcement.

Research on the production of the program transfer calculation using data tidal datum (Muhammad Zulkifli bin Ishak, Nik Mohd Fadhil bin Nik Abdul Nasir et al. 2013) produce calculations using Microsoft excel to facilitate students making calculations quickly and accurately. This programme is focused on six-semester students and can be use as material to teach in Politeknik Merlimau. The analysis performed shows that the program is essentials for use by students of sixth semester

Refer to the study of the use of the spreadsheet (Microsoft excel) in the design of steel connections based on EUROCODE 3 (EC3) (Siti Khadijah binti Mahmod, 2008) which aims to produce an application program design of steel connections using Microsoft Excel 2007. The program is produced because the software Microsoft excel is much cheaper compared to other software e.g. EC3. The program built by offering three types of connection construction design, namely pin connections such as double angle web cleats connection , the connection plate end plate connections and flexible fin only in these three types of connection there are two parts, namely a connection beam to beam and beam to column connections. However, the project is only committing to the development of application program for the design of steel structure connection.

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CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

Methodology of the study is a rigorous planning in terms of our final journey. For the smooth running of this final project, methodology should be compiled with as soon as possible so that the project will not be excluded from the track has been set or more exactly, the end result of the study will be to the needs of each process that there is a problem within the structure of the methodology.

Methodology needs to be done is to get all the information related to the development of the program, data such as data observation distance, making the study questionnaire to determine the problem statement and finally the implementation of the production program. Figure 3.1 shows the flow chart methodology review for production of programmes from the beginning of development programmes to programmes produced and final report completed.

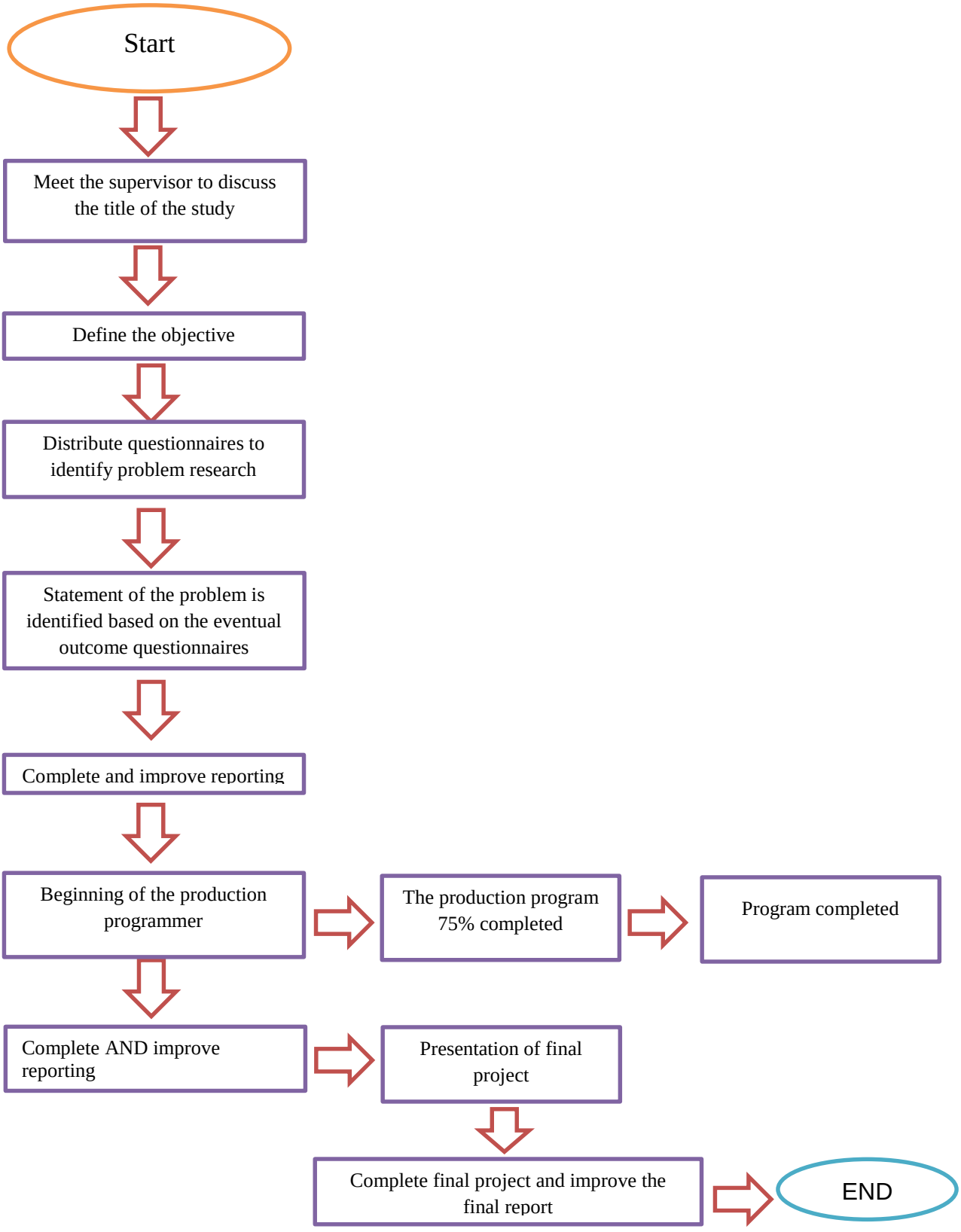


Figure 3.1:flow chart work

Table 3.1 Program development plan VSd

Project process																
week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Activities	Selection of project title																
	Objective of the study, review of prefixes, statement of the problem.																
	Literature review and research methodology																
	The production programme																
	Analysis program																
	Preparation for final report																
	presentation																

3.2 Summary of activities the VSd development

Although the plan has been made, some daily activities also need to we follow as per the table 3.2. The given time within 14 weeks has acted with as soon as possible and prepare the final report, as set out.

Table 3.2: Schedule development of VSd program

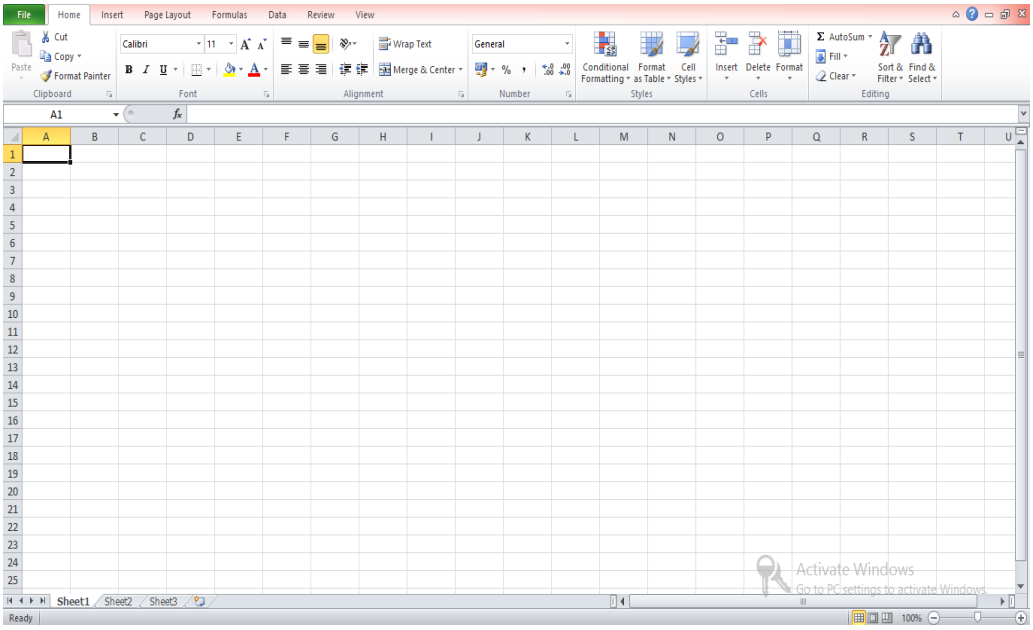
WEEK & DATE	ACTIVITY
1 **20/6/-24/06/16**	1. The selection of supervisors. 2. Meeting the supervisor to discuss the title. 3. Ask for the opinion of the selection of project from supervisor.
2 **27/06–01/07/16**	1. Meeting the supervisors. 2. Project title specified. 3. Delegation of tasks to group members for a final report. 4. Ask for ideas related to writing the final report.
3	1. Meeting the supervisors.

11/07–15/07/16	2. Discuss the objectives of the study. 3. Production of programmes carried out. 4. Ask for ideas related to writing the final report.
4 **18/07–22/07/16**	1. Meeting the supervisors. 2. Distribute questionnaires to identify problem statement. 3. The production of the programme continued. 4. Improve the final report.
5 **25/07–29/07/16**	1. Meeting the supervisors. 2. Do a preliminary analysis. 3. Identify problems faced by students. 4. Improve the final report.
6 **01/08– 05/08/16**	1. Meeting the supervisors. 2. Prepare draft report (Chapter 1). 3. Send the draft report (Chapter 1). 4. Improve the final report.
7 **08/08 –12/08/16**	1. Meeting the supervisors. 2. Improve the program have been developed. 3. Improve writing related final report. 4. Ask for views and advice relating to the development of the program and writing a final report
8 **15/08 –19/08/16**	1. Meeting the supervisors. 2. Send a final report (Chapter 1). 3. Discuss relevant research literature and methodology. 4. Show the programme 5. Improve the programme
9 **17/08 –22/08/16**	1. Meeting the supervisors. 2. Send the draft reports (Chapter 2 and Chapter 3). 3. Improve writing.

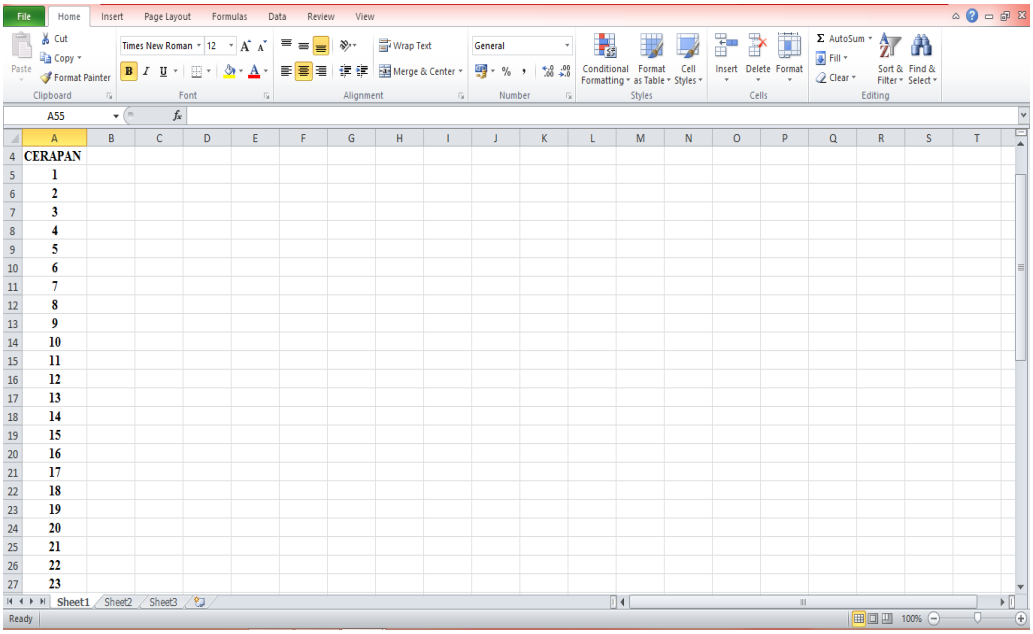
	4. Shows the programme supervisor.
10 **29/08– 02/09/16**	1. Meeting the supervisors. 2. Improve the program. 3. Improve the writing a final report. 4. Meet with people who are well versed with the subject of survey adjustments to ask for their views and opinions.
11 **05/09 –09/09/16**	1. Meeting the supervisors. 2. Send a final report (Chapter 2 and 3). 3. Ask for the views of supervisors in relation to programs produced.
12 **19/09–23/09/16**	1. Meeting the supervisors. 2. Discuss relevant writing analysis program. 3. Improve programs developed.
13 **26/09–30/09/16**	1. Meeting the supervisors. 2. Send a final report (Chapter 4). 3. Improve the final report and the programme before the presentation. 4. Prepare presentations materials.
14 **03/10–7/10/16**	1. Meeting the supervisors. 2. Final project presentations.
15-16 **00/10–21/10/15**	1. Meeting the supervisors. 2. Improve the final report. 3. Send final report

3.3 Procedures to produce VSd program using Microsoft Excel 2010

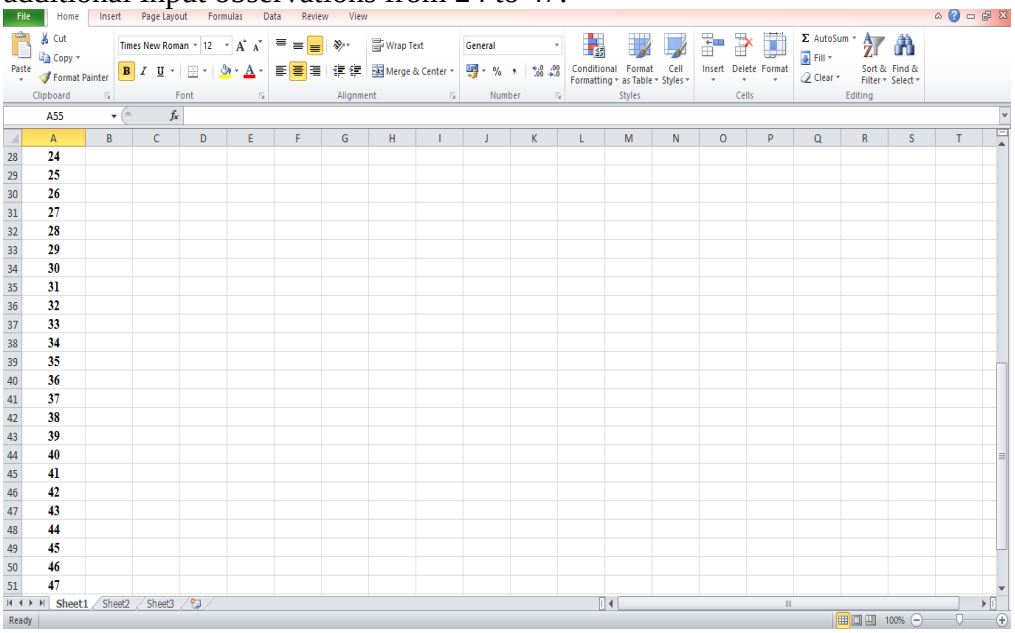
1. First open Microsoft excel 2010 window.



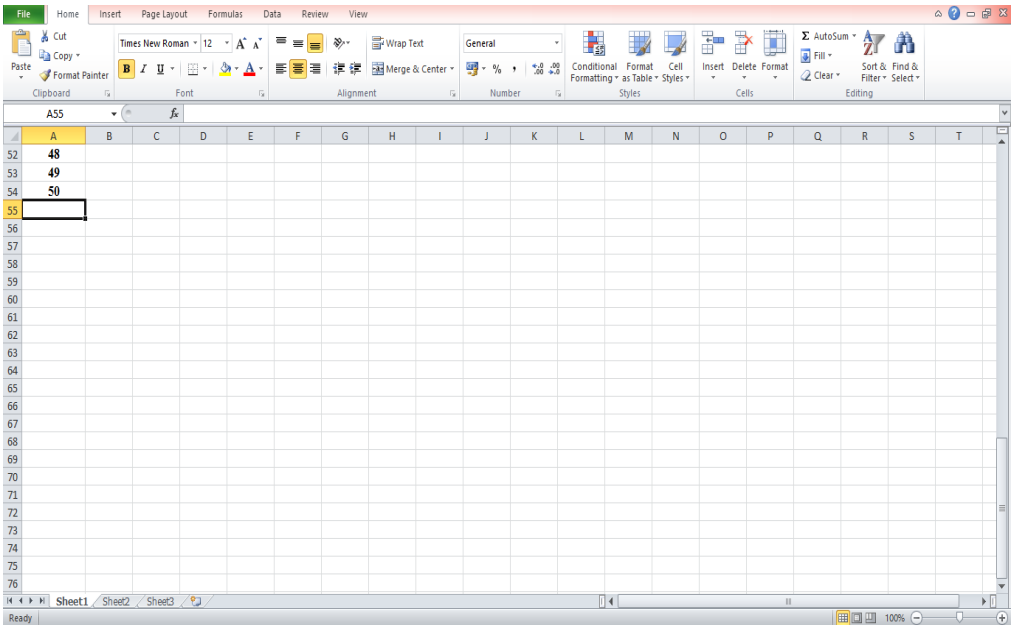
2. Put the number of observations from 1 to 23.



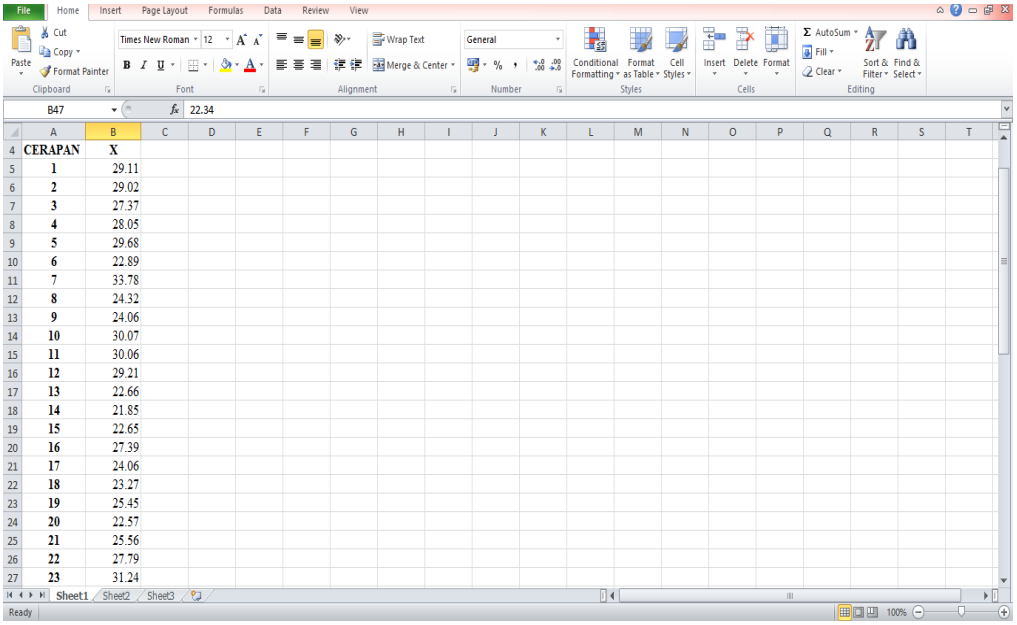
3. additional Input observations from 24 to 47.



4. additional Input observations from 24 to 47.

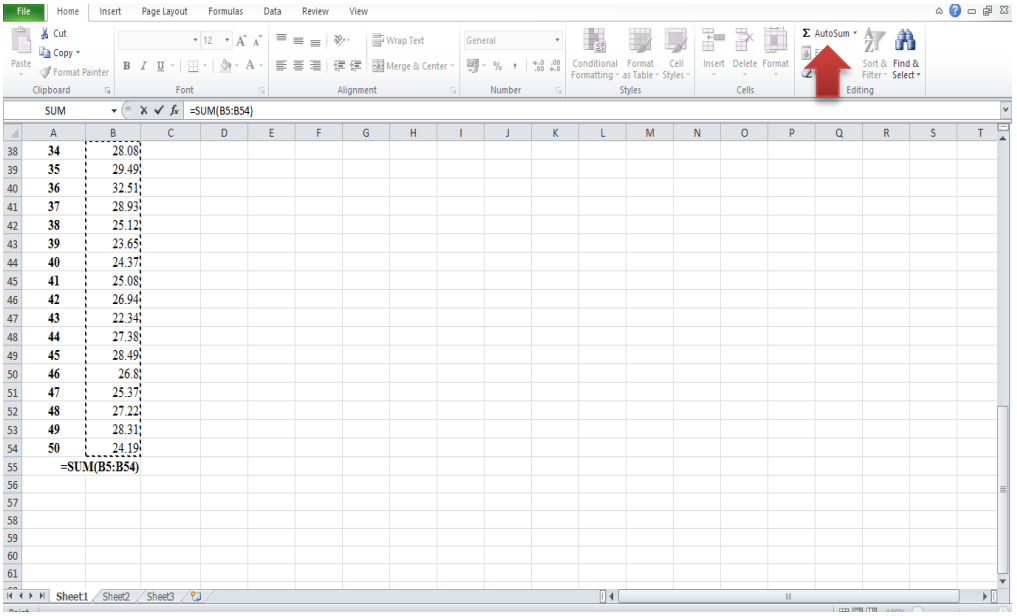


5. Build a space for keying in data observations a number of observations from 1 to 50.



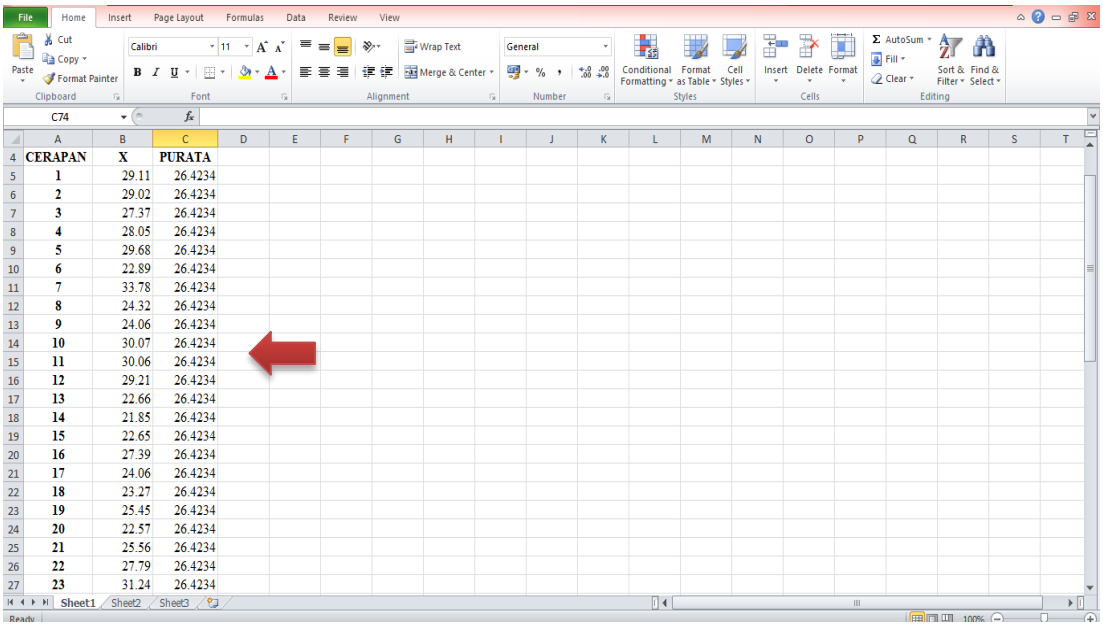
	A	B
4	CERAPAN	X
5	1	29.11
6	2	29.02
7	3	27.37
8	4	28.05
9	5	29.68
10	6	22.89
11	7	33.78
12	8	24.32
13	9	24.06
14	10	30.07
15	11	30.06
16	12	29.21
17	13	22.66
18	14	21.85
19	15	22.65
20	16	27.39
21	17	24.06
22	18	23.27
23	19	25.45
24	20	22.57
25	21	25.56
26	22	27.79
27	23	31.24

6. Get the value of the number for the data observations by using autosum.



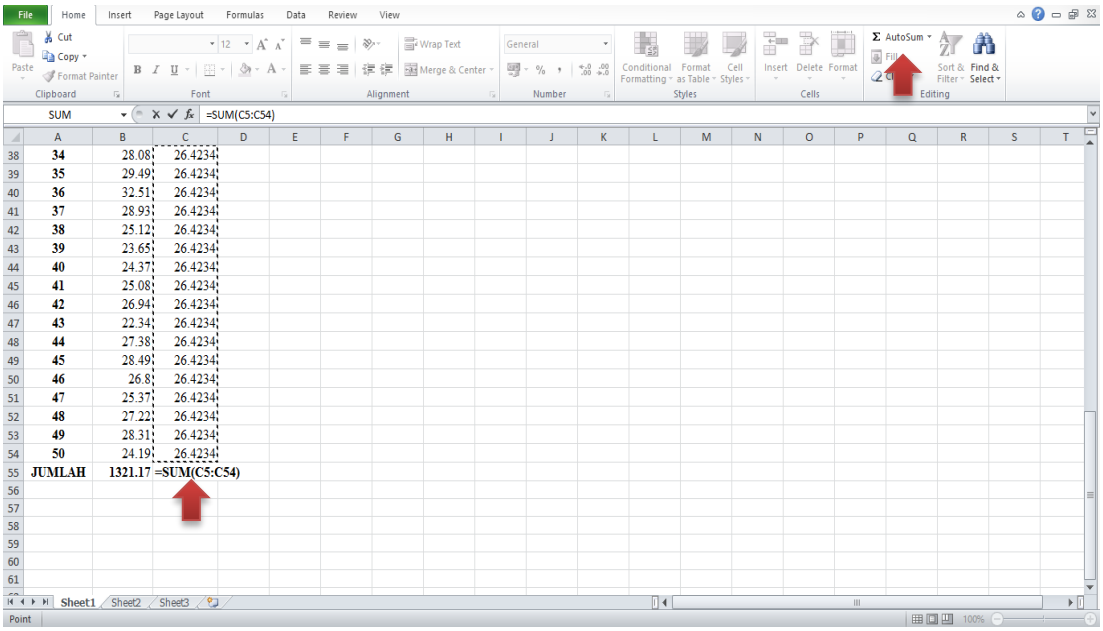
	A	B
38	34	28.08
39	35	29.49
40	36	32.51
41	37	28.93
42	38	25.12
43	39	23.65
44	40	24.37
45	41	25.08
46	42	26.94
47	43	22.34
48	44	27.38
49	45	28.49
50	46	26.8
51	47	25.37
52	48	27.22
53	49	28.31
54	50	24.19
55		=SUM(B5:B54)

7. To get the average value of the observations, sum all the value of "X" and divided by the number of observations.



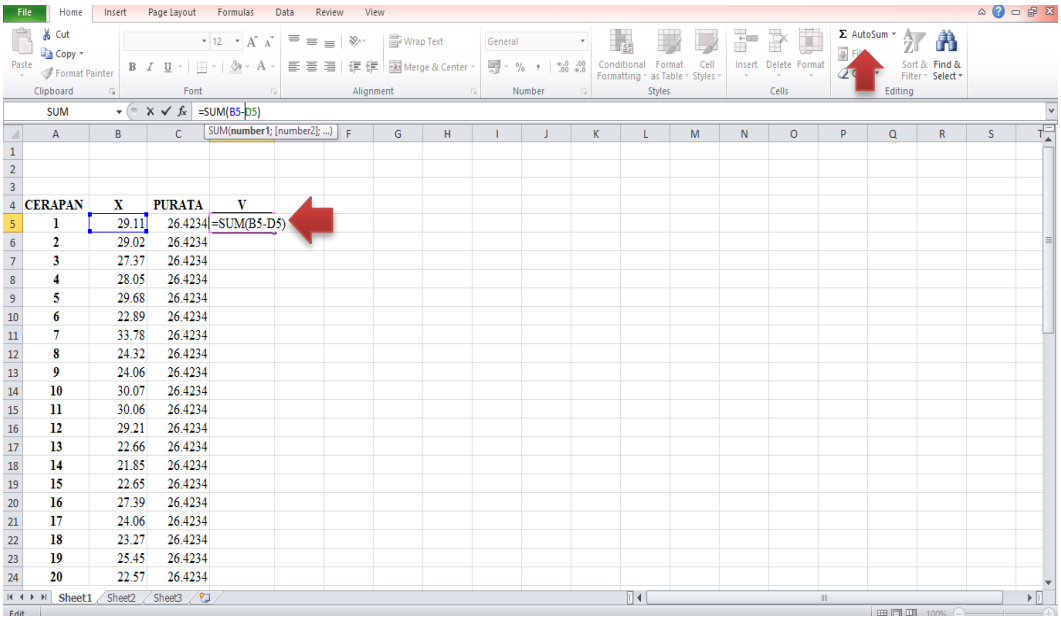
CERAPAN	X	PURATA
1	29.11	26.4234
2	29.02	26.4234
3	27.37	26.4234
4	28.05	26.4234
5	29.68	26.4234
6	22.89	26.4234
7	33.78	26.4234
8	24.32	26.4234
9	24.06	26.4234
10	30.07	26.4234
11	30.06	26.4234
12	29.21	26.4234
13	22.66	26.4234
14	21.85	26.4234
15	22.65	26.4234
16	27.39	26.4234
17	24.06	26.4234
18	23.27	26.4234
19	25.45	26.4234
20	22.57	26.4234
21	25.56	26.4234
22	27.79	26.4234
23	31.24	26.4234

8. to obtain the average number of values, use the "autosum".



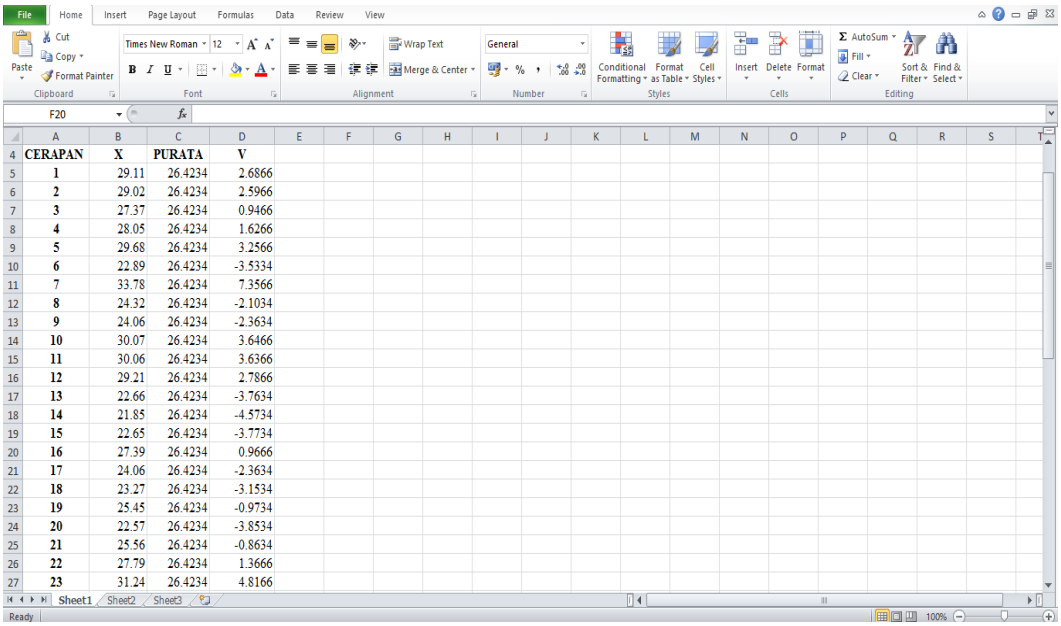
34	28.08	26.4234	
35	29.49	26.4234	
36	32.51	26.4234	
37	28.93	26.4234	
38	25.12	26.4234	
39	23.65	26.4234	
40	24.37	26.4234	
41	25.08	26.4234	
42	26.94	26.4234	
43	22.34	26.4234	
44	27.38	26.4234	
45	28.49	26.4234	
46	26.8	26.4234	
47	25.37	26.4234	
48	27.22	26.4234	
49	28.31	26.4234	
50	24.19	26.4234	
JUMLAH	1321.17	=SUM(C5:C54)	

9. Construct a space for "V" which is the value of the residuel. To get the value of the "V" enter minus formula = sum (B5-D5).



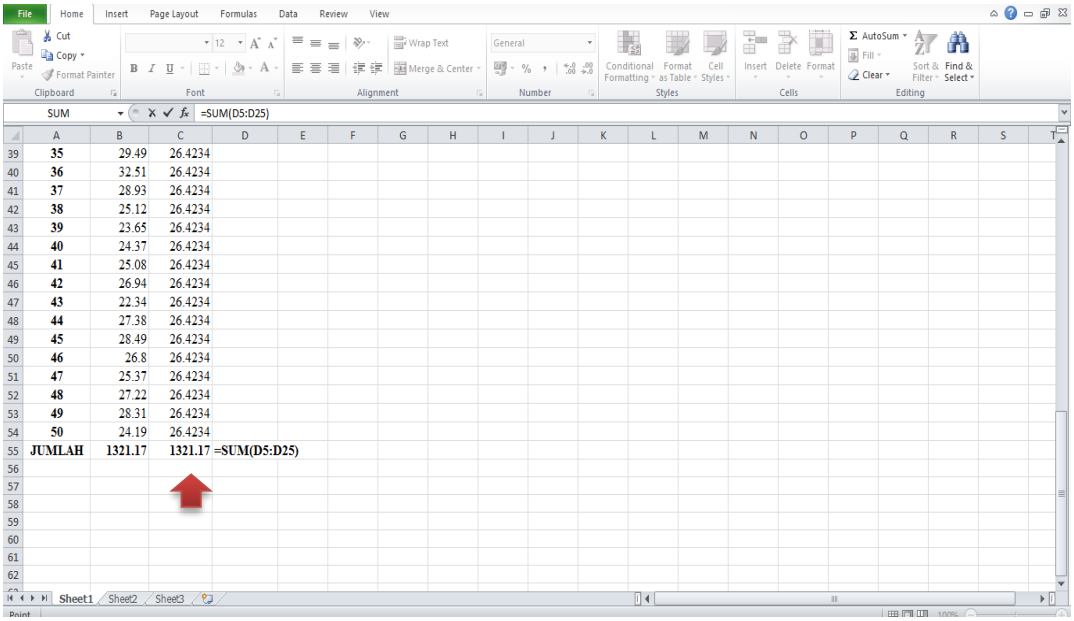
CERAPAN	X	PURATA	V
1	29.11	26.4234	=SUM(B5-D5)
2	29.02	26.4234	
3	27.37	26.4234	
4	28.05	26.4234	
5	29.68	26.4234	
6	22.89	26.4234	
7	33.78	26.4234	
8	24.32	26.4234	
9	24.06	26.4234	
10	30.07	26.4234	
11	30.06	26.4234	
12	29.21	26.4234	
13	22.66	26.4234	
14	21.85	26.4234	
15	22.65	26.4234	
16	27.39	26.4234	
17	24.06	26.4234	
18	23.27	26.4234	
19	25.45	26.4234	
20	22.57	26.4234	

10. Repeat step 9 to get the value of the "v" for each observation.

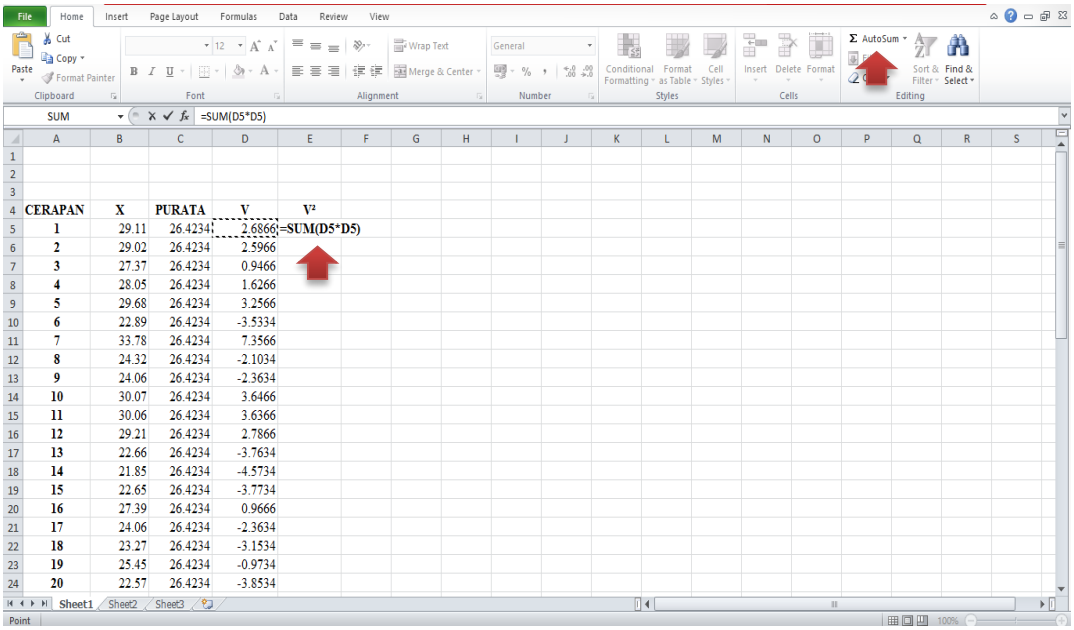


CERAPAN	X	PURATA	V
1	29.11	26.4234	2.6866
2	29.02	26.4234	2.5966
3	27.37	26.4234	0.9466
4	28.05	26.4234	1.6266
5	29.68	26.4234	3.2566
6	22.89	26.4234	-3.5334
7	33.78	26.4234	7.3566
8	24.32	26.4234	-2.1034
9	24.06	26.4234	-2.3634
10	30.07	26.4234	3.6466
11	30.06	26.4234	3.6366
12	29.21	26.4234	2.7866
13	22.66	26.4234	-3.7634
14	21.85	26.4234	-4.5734
15	22.65	26.4234	-3.7734
16	27.39	26.4234	0.9666
17	24.06	26.4234	-2.3634
18	23.27	26.4234	-3.1534
19	25.45	26.4234	-0.9734
20	22.57	26.4234	-3.8534
21	25.56	26.4234	-0.8634
22	27.79	26.4234	1.3666
23	31.24	26.4234	4.8166

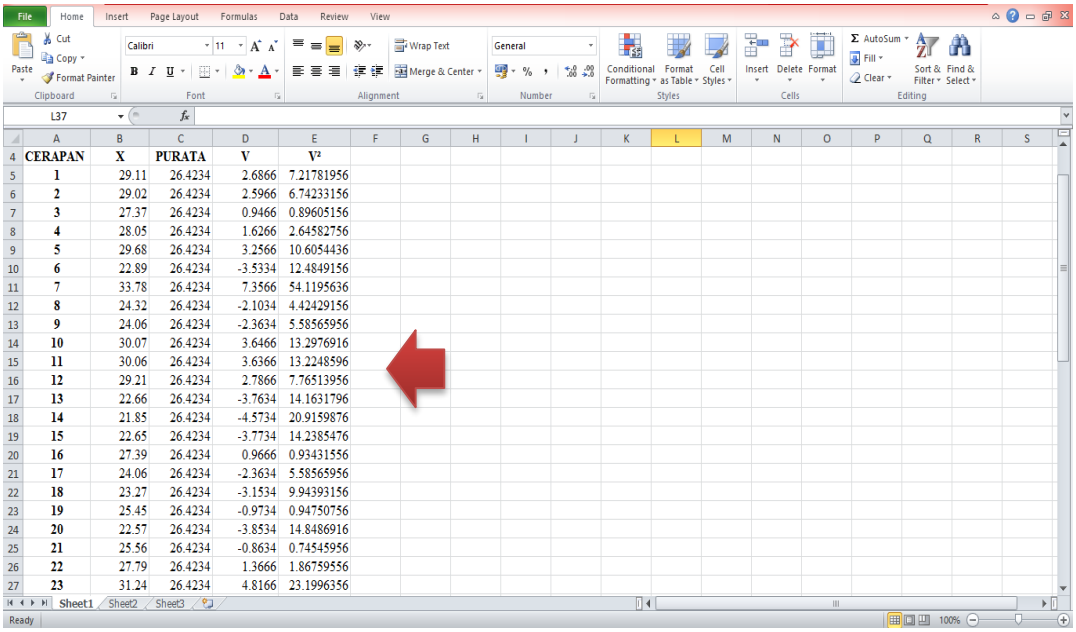
11. Next get the value of the number "v" by clicking the "autosum" = sum (D5: D25).



12. Construct a space for "v2". To get the value of the "v2" use multiplication = sum (D5 * D5).

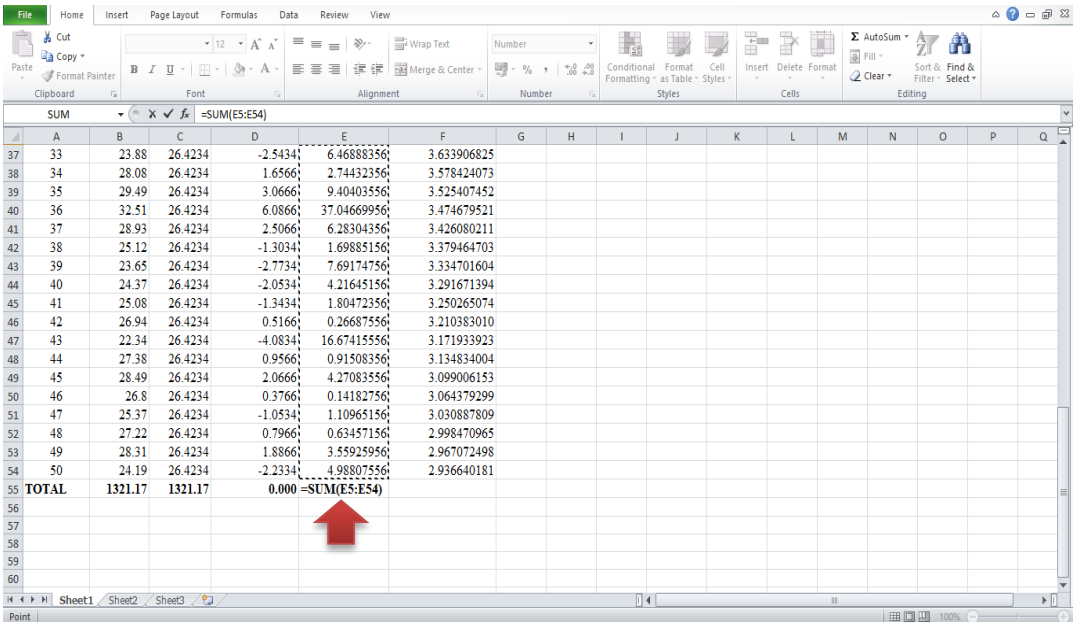


13. Repeat the step 12 to get the value of the "v2" to all the observations.



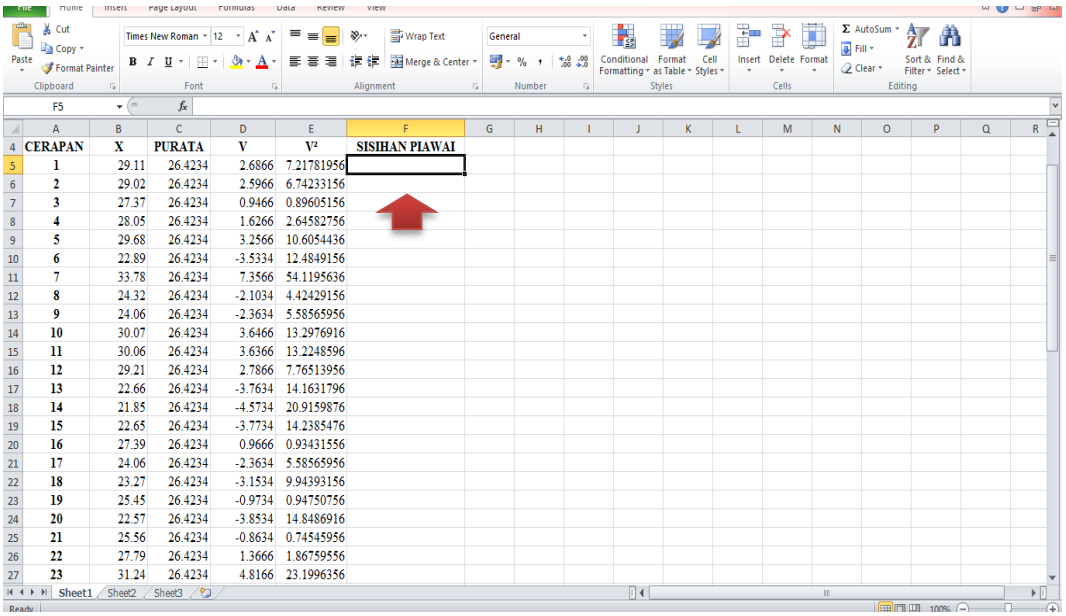
	A	B	C	D	E
4	CERAPAN	X	PURATA	V	V²
5	1	29.11	26.4234	2.6866	7.21781956
6	2	29.02	26.4234	2.5966	6.74233156
7	3	27.37	26.4234	0.9466	0.89605156
8	4	28.05	26.4234	1.6266	2.64582756
9	5	29.68	26.4234	3.2566	10.6054436
10	6	22.89	26.4234	-3.5334	12.4849156
11	7	33.78	26.4234	7.3566	54.1195636
12	8	24.32	26.4234	-2.1034	4.42429156
13	9	24.06	26.4234	-2.3634	5.58565956
14	10	30.07	26.4234	3.6466	13.2976916
15	11	30.06	26.4234	3.6366	13.2248596
16	12	29.21	26.4234	2.7866	7.76513956
17	13	22.66	26.4234	-3.7634	14.1631796
18	14	21.85	26.4234	-4.5734	20.9159876
19	15	22.65	26.4234	-3.7734	14.2385476
20	16	27.39	26.4234	0.9666	0.93431556
21	17	24.06	26.4234	-2.3634	5.58565956
22	18	23.27	26.4234	-3.1534	9.94393156
23	19	25.45	26.4234	-0.9734	0.94750756
24	20	22.57	26.4234	-3.8534	14.8486916
25	21	25.56	26.4234	-0.8634	0.74545956
26	22	27.79	26.4234	1.3666	1.86759556
27	23	31.24	26.4234	4.8166	23.1996356

14. sum the value of the "v2" by using the multiplication formula = sum (E5: E54).



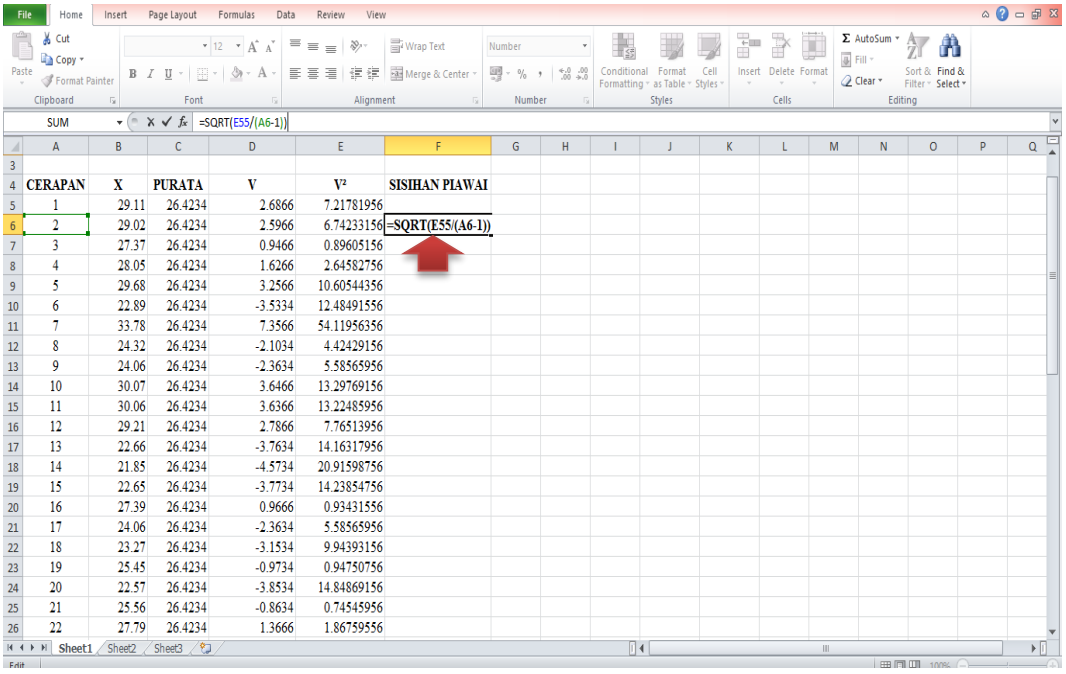
	A	B	C	D	E	F
37	33	23.88	26.4234	-2.5434	6.46888356	3.633906825
38	34	28.08	26.4234	1.6566	2.74432356	3.578424073
39	35	29.49	26.4234	3.0666	9.40403556	3.525407452
40	36	32.51	26.4234	6.0866	37.04669956	3.474679521
41	37	28.93	26.4234	2.5066	6.28304356	3.426080211
42	38	25.12	26.4234	-1.3034	1.69885156	3.379464703
43	39	23.65	26.4234	-2.7734	7.69174756	3.334701604
44	40	24.37	26.4234	-2.0534	4.21645156	3.291671394
45	41	25.08	26.4234	-1.3434	1.80472356	3.250265074
46	42	26.94	26.4234	0.5166	0.26687556	3.210383010
47	43	22.34	26.4234	-4.0834	16.67415556	3.171933923
48	44	27.38	26.4234	0.9566	0.91508356	3.134834004
49	45	28.49	26.4234	2.0666	4.27083556	3.099006153
50	46	26.8	26.4234	0.3766	0.14182756	3.064379299
51	47	25.37	26.4234	-1.0534	1.10965156	3.030887809
52	48	27.22	26.4234	0.7966	0.63457156	2.998470965
53	49	28.31	26.4234	1.8866	3.55925956	2.967072498
54	50	24.19	26.4234	-2.2334	4.98807556	2.936640181
55	TOTAL	1321.17	1321.17	0.000	=SUM(E5:E54)	

15. Build a space to get the standard deviation.



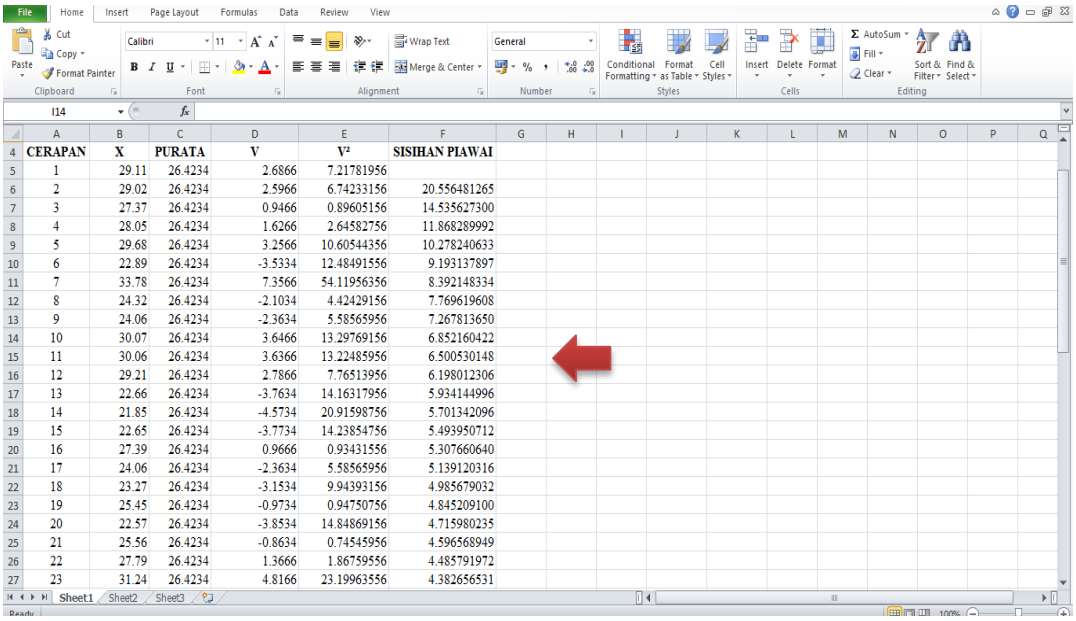
	A	B	C	D	E	F
4	CERAPAN	X	PURATA	V	V²	SISIHAN PIAWAI
5	1	29.11	26.4234	2.6866	7.21781956	
6	2	29.02	26.4234	2.5966	6.74233156	
7	3	27.37	26.4234	0.9466	0.89605156	
8	4	28.05	26.4234	1.6266	2.64582756	
9	5	29.68	26.4234	3.2566	10.6054436	
10	6	22.89	26.4234	-3.5334	12.4849156	
11	7	33.78	26.4234	7.3566	54.1195636	
12	8	24.32	26.4234	-2.1034	4.42429156	
13	9	24.06	26.4234	-2.3634	5.58565956	
14	10	30.07	26.4234	3.6466	13.2976916	
15	11	30.06	26.4234	3.6366	13.2248596	
16	12	29.21	26.4234	2.7866	7.76513956	
17	13	22.66	26.4234	-3.7634	14.1631796	
18	14	21.85	26.4234	-4.5734	20.9159876	
19	15	22.65	26.4234	-3.7734	14.2385476	
20	16	27.39	26.4234	0.9666	0.93431556	
21	17	24.06	26.4234	-2.3634	5.58565956	
22	18	23.27	26.4234	-3.1534	9.94393156	
23	19	25.45	26.4234	-0.9734	0.94750756	
24	20	22.57	26.4234	-3.8534	14.8486916	
25	21	25.56	26.4234	-0.8634	0.74545956	
26	22	27.79	26.4234	1.3666	1.86759556	
27	23	31.24	26.4234	4.8166	23.1996356	

16. Input the formula to obtain the standard deviation for each data observations. = SQRT (E55/(A6-1).



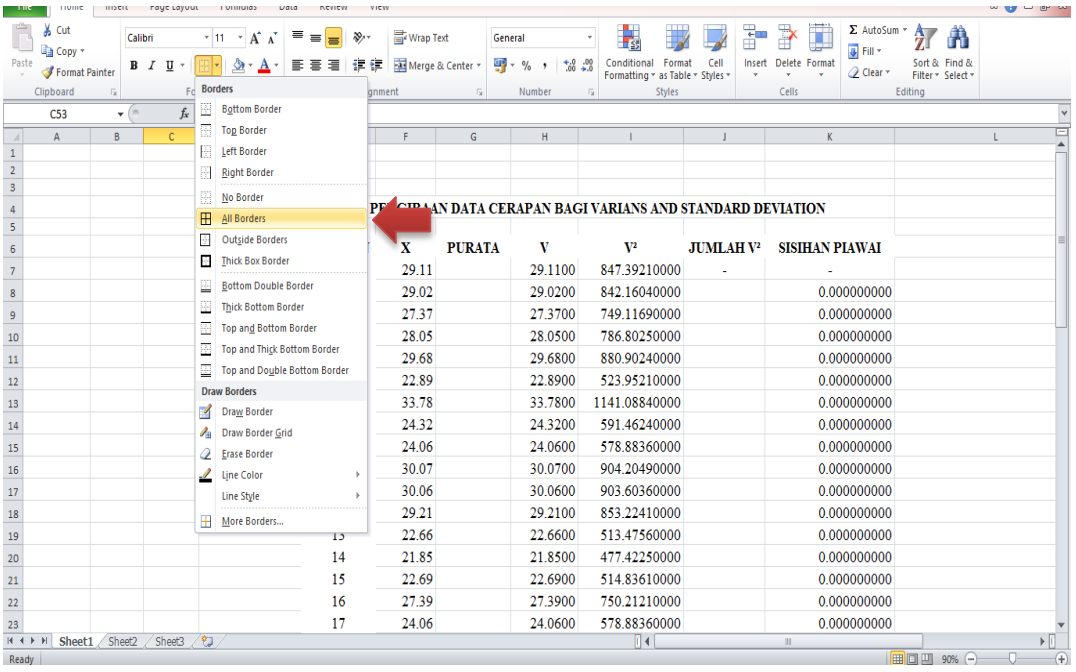
	A	B	C	D	E	F
3						
4	CERAPAN	X	PURATA	V	V²	SISIHAN PIAWAI
5	1	29.11	26.4234	2.6866	7.21781956	
6	2	29.02	26.4234	2.5966	6.74233156	=SQRT(E55/(A6-1))
7	3	27.37	26.4234	0.9466	0.89605156	
8	4	28.05	26.4234	1.6266	2.64582756	
9	5	29.68	26.4234	3.2566	10.60544356	
10	6	22.89	26.4234	-3.5334	12.48491556	
11	7	33.78	26.4234	7.3566	54.11956356	
12	8	24.32	26.4234	-2.1034	4.42429156	
13	9	24.06	26.4234	-2.3634	5.58565956	
14	10	30.07	26.4234	3.6466	13.29769156	
15	11	30.06	26.4234	3.6366	13.22485956	
16	12	29.21	26.4234	2.7866	7.76513956	
17	13	22.66	26.4234	-3.7634	14.16317956	
18	14	21.85	26.4234	-4.5734	20.91598756	
19	15	22.65	26.4234	-3.7734	14.23854756	
20	16	27.39	26.4234	0.9666	0.93431556	
21	17	24.06	26.4234	-2.3634	5.58565956	
22	18	23.27	26.4234	-3.1534	9.94393156	
23	19	25.45	26.4234	-0.9734	0.94750756	
24	20	22.57	26.4234	-3.8534	14.84869156	
25	21	25.56	26.4234	-0.8634	0.74545956	
26	22	27.79	26.4234	1.3666	1.86759556	

17. to obtain the value of the standard deviation for all amounts by the observations, repeat the step 16.



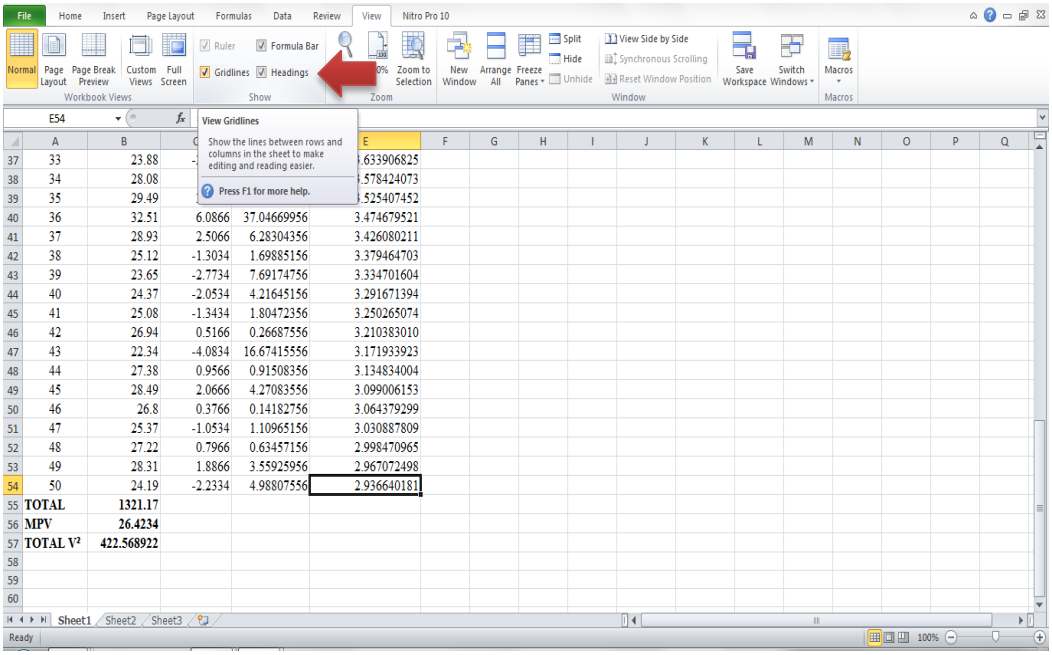
CERAPAN	X	PURATA	V	V²	SISIHAN PIAWAI
1	29.11	26.4234	2.6866	7.21781956	
2	29.02	26.4234	2.5966	6.74233156	20.556481265
3	27.37	26.4234	0.9466	0.89605156	14.535627300
4	28.05	26.4234	1.6266	2.64582756	11.868289992
5	29.68	26.4234	3.2566	10.60544356	10.278240633
6	22.89	26.4234	-3.5334	12.48491556	9.193137897
7	33.78	26.4234	7.3566	54.11956356	8.392148334
8	24.32	26.4234	-2.1034	4.42429156	7.769619608
9	24.06	26.4234	-2.3634	5.58565956	7.267813650
10	30.07	26.4234	3.6466	13.29769156	6.852160422
11	30.06	26.4234	3.6366	13.22485956	6.500530148
12	29.21	26.4234	2.7866	7.76513956	6.198012306
13	22.66	26.4234	-3.7634	14.16317956	5.934144996
14	21.85	26.4234	-4.5734	20.91598756	5.701342096
15	22.65	26.4234	-3.7734	14.23854756	5.493950712
16	27.39	26.4234	0.9666	0.93431556	5.307660640
17	24.06	26.4234	-2.3634	5.58565956	5.139120316
18	23.27	26.4234	-3.1534	9.94393156	4.985679032
19	25.45	26.4234	-0.9734	0.94750756	4.845209100
20	22.57	26.4234	-3.8534	14.84869156	4.715980235
21	25.56	26.4234	-0.8634	0.74545956	4.596568949
22	27.79	26.4234	1.3666	1.86759556	4.485791972
23	31.24	26.4234	4.8166	23.19963556	4.382656531

18. choose “all border”



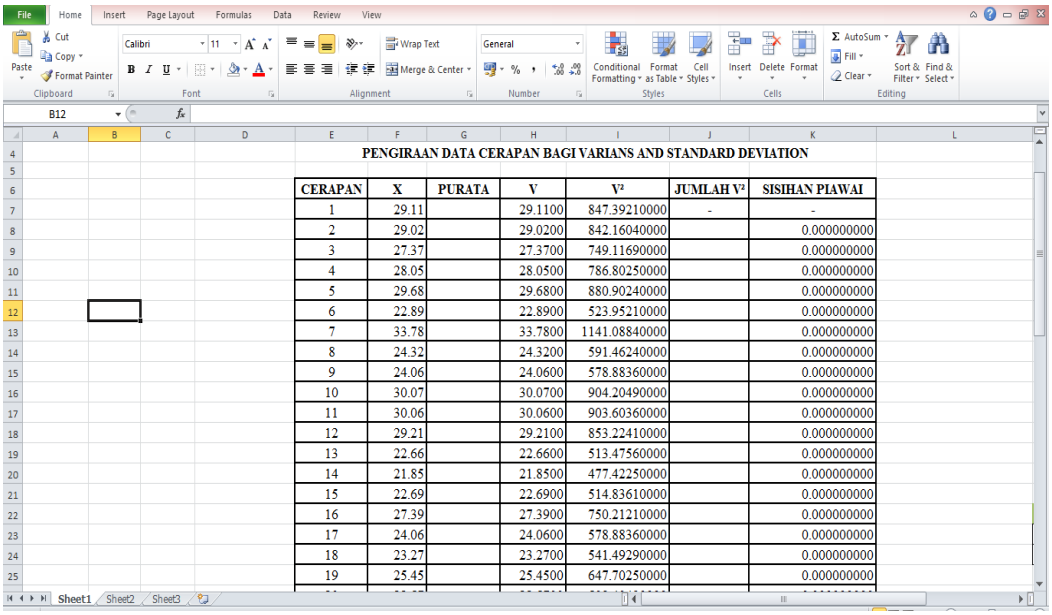
X	PURATA	V	V²	JUMLAH V²	SISIHAN PIAWAI
29.11		29.1100	847.39210000	-	-
29.02		29.0200	842.16040000		0.000000000
27.37		27.3700	749.11690000		0.000000000
28.05		28.0500	786.80250000		0.000000000
29.68		29.6800	880.90240000		0.000000000
22.89		22.8900	523.95210000		0.000000000
33.78		33.7800	1141.08840000		0.000000000
24.32		24.3200	591.46240000		0.000000000
24.06		24.0600	578.88360000		0.000000000
30.07		30.0700	904.20490000		0.000000000
30.06		30.0600	903.60360000		0.000000000
29.21		29.2100	853.22410000		0.000000000
22.66		22.6600	513.47560000		0.000000000
21.85		21.8500	477.42250000		0.000000000
22.69		22.6900	514.83610000		0.000000000
27.39		27.3900	750.21210000		0.000000000
24.06		24.0600	578.88360000		0.000000000

19. remove "gridline" → view → unclick gridline



37	33	23.88			.633906825
38	34	28.08			.578424073
39	35	29.49			.525407452
40	36	32.51	6.0866	37.04669956	3.474679521
41	37	28.93	2.5066	6.28304356	3.426080211
42	38	25.12	-1.3034	1.69885156	3.379464703
43	39	23.65	-2.7734	7.69174756	3.334701604
44	40	24.37	-2.0534	4.21645156	3.291671394
45	41	25.08	-1.3434	1.80472356	3.250265074
46	42	26.94	0.5166	0.26687556	3.210383010
47	43	22.34	-4.0834	16.67415556	3.171933923
48	44	27.38	0.9566	0.91508356	3.134834004
49	45	28.49	2.0666	4.27083556	3.099006153
50	46	26.8	0.3766	0.14182756	3.064379299
51	47	25.37	-1.0534	1.10965156	3.030887809
52	48	27.22	0.7966	0.63457156	2.998470965
53	49	28.31	1.8866	3.55925956	2.967072498
54	50	24.19	-2.2334	4.98807556	2.936640181
55	**TOTAL**	**1321.17**			
56	**MPV**	**26.4234**			
57	**TOTAL V²**	**422.568922**			

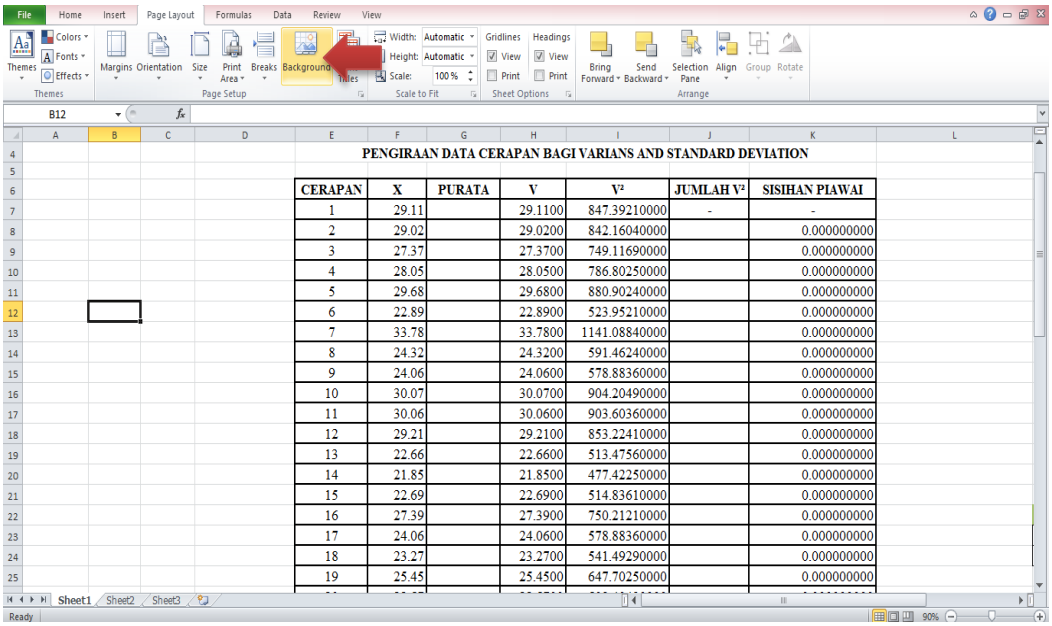
20. output…..



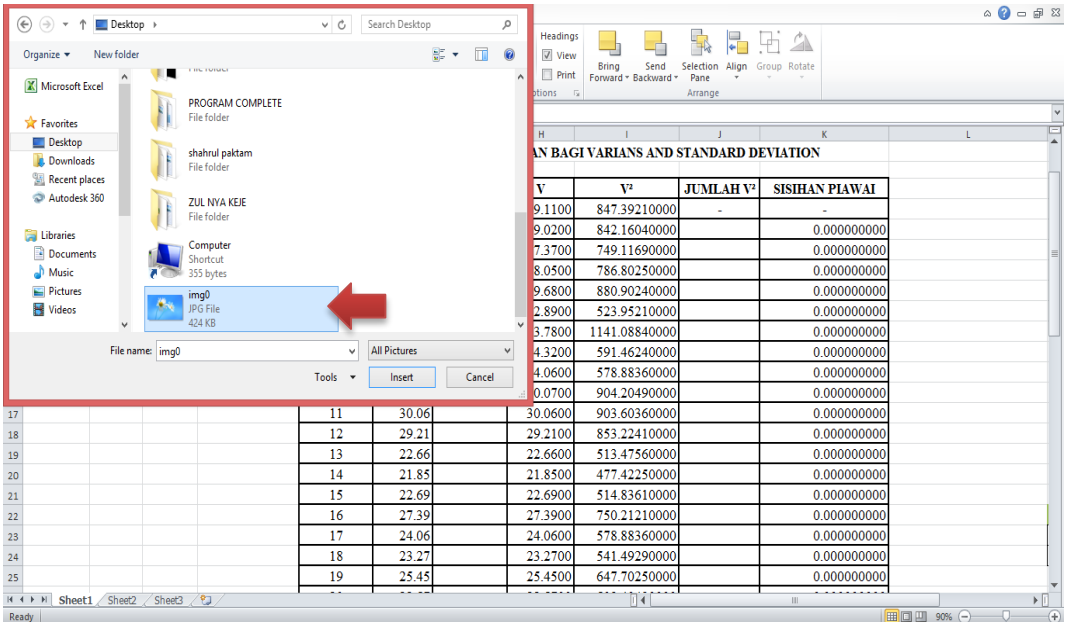
PENGIRAAN DATA CERAPAN BAGI VARIANS AND STANDARD DEVIATION

CERAPAN	X	PURATA	V	V²	JUMLAH V²	SISIHAN PIAWAI
1	29.11		29.1100	847.39210000	-	-
2	29.02		29.0200	842.16040000		0.000000000
3	27.37		27.3700	749.11690000		0.000000000
4	28.05		28.0500	786.80250000		0.000000000
5	29.68		29.6800	880.90240000		0.000000000
6	22.89		22.8900	523.95210000		0.000000000
7	33.78		33.7800	1141.08840000		0.000000000
8	24.32		24.3200	591.46240000		0.000000000
9	24.06		24.0600	578.88360000		0.000000000
10	30.07		30.0700	904.20490000		0.000000000
11	30.06		30.0600	903.60360000		0.000000000
12	29.21		29.2100	853.22410000		0.000000000
13	22.66		22.6600	513.47560000		0.000000000
14	21.85		21.8500	477.42250000		0.000000000
15	22.69		22.6900	514.83610000		0.000000000
16	27.39		27.3900	750.21210000		0.000000000
17	24.06		24.0600	578.88360000		0.000000000
18	23.27		23.2700	541.49290000		0.000000000
19	25.45		25.4500	647.70250000		0.000000000

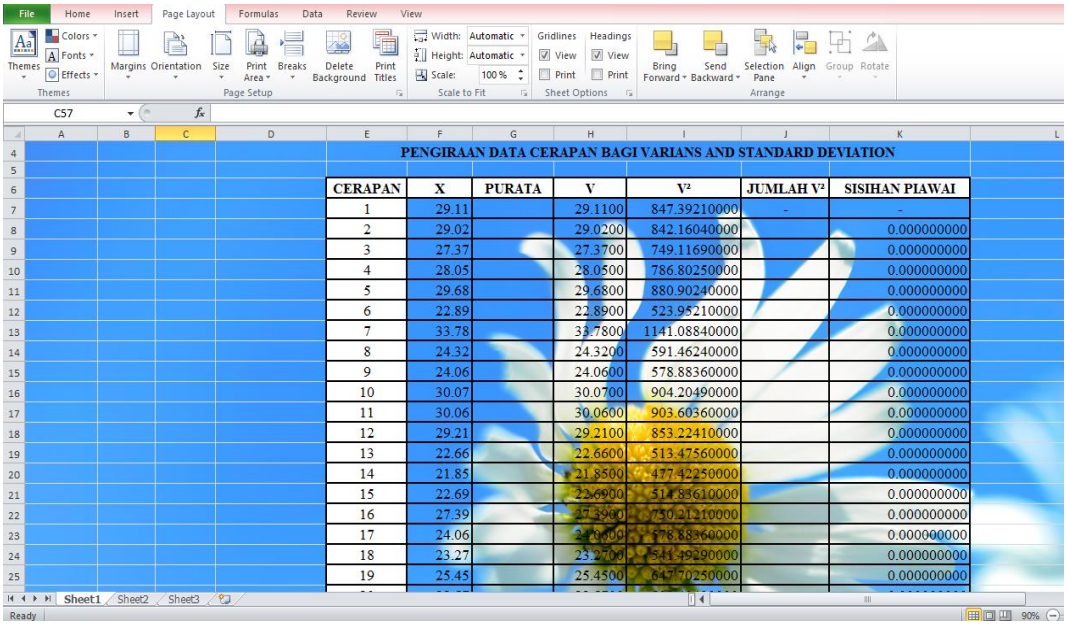
21. choose the background



22. choose picture to make background



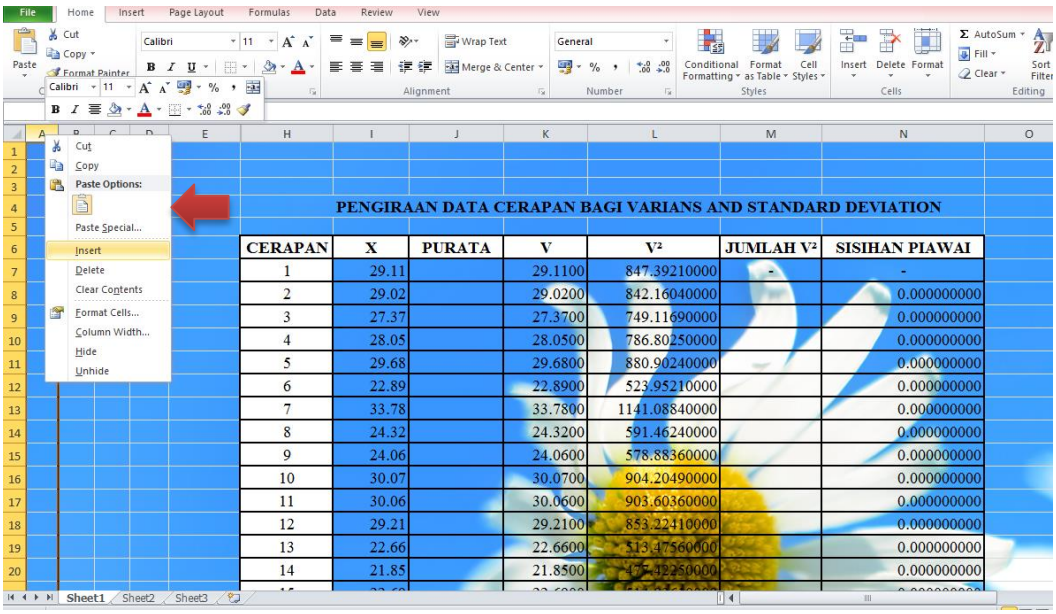
23. The result…..



PENGIRAAN DATA CERAPAN BAGI VARIANS AND STANDARD DEVIATION

CERAPAN	X	PURATA	V	V²	JUMLAH V²	SISIHAN PIAWAI
1	29.11		29.1100	847.39210000	-	-
2	29.02		29.0200	842.16040000		0.000000000
3	27.37		27.3700	749.11690000		0.000000000
4	28.05		28.0500	786.80250000		0.000000000
5	29.68		29.6800	880.90240000		0.000000000
6	22.89		22.8900	523.95210000		0.000000000
7	33.78		33.7800	1141.08840000		0.000000000
8	24.32		24.3200	591.46240000		0.000000000
9	24.06		24.0600	578.88360000		0.000000000
10	30.07		30.0700	904.20490000		0.000000000
11	30.06		30.0600	903.60360000		0.000000000
12	29.21		29.2100	853.22410000		0.000000000
13	22.66		22.6600	513.47560000		0.000000000
14	21.85		21.8500	477.42250000		0.000000000
15	22.69		22.6900	514.83610000		0.000000000
16	27.39		27.3900	750.21210000		0.000000000
17	24.06		24.0600	578.88360000		0.000000000
18	23.27		23.2700	541.49290000		0.000000000
19	25.45		25.4500	647.70250000		0.000000000

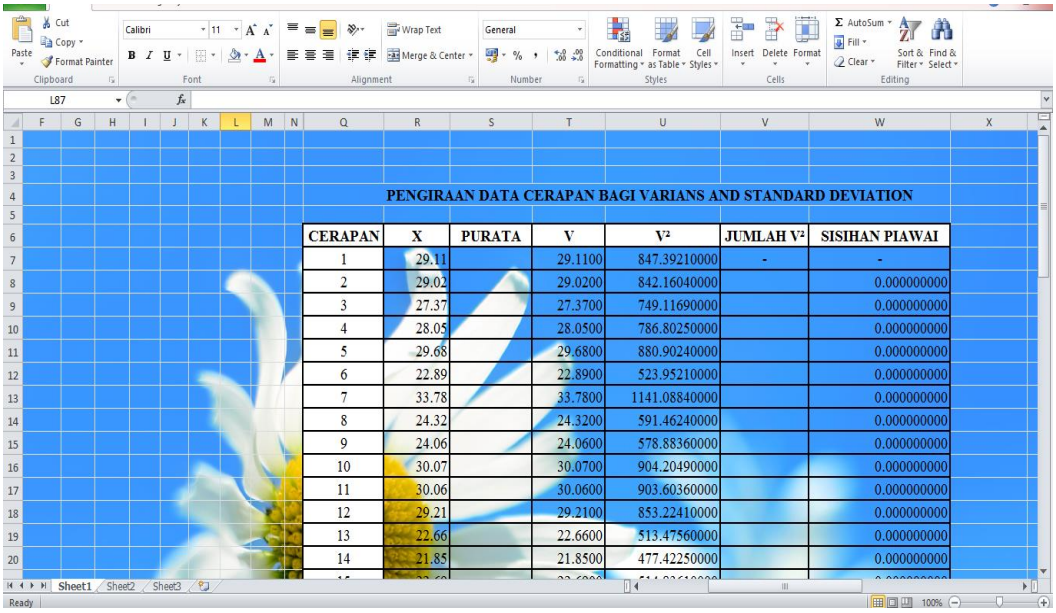
24. Choose A to move that table at middle .



PENGIRAAN DATA CERAPAN BAGI VARIANS AND STANDARD DEVIATION

CERAPAN	X	PURATA	V	V²	JUMLAH V²	SISIHAN PIAWAI
1	29.11		29.1100	847.39210000	-	-
2	29.02		29.0200	842.16040000		0.000000000
3	27.37		27.3700	749.11690000		0.000000000
4	28.05		28.0500	786.80250000		0.000000000
5	29.68		29.6800	880.90240000		0.000000000
6	22.89		22.8900	523.95210000		0.000000000
7	33.78		33.7800	1141.08840000		0.000000000
8	24.32		24.3200	591.46240000		0.000000000
9	24.06		24.0600	578.88360000		0.000000000
10	30.07		30.0700	904.20490000		0.000000000
11	30.06		30.0600	903.60360000		0.000000000
12	29.21		29.2100	853.22410000		0.000000000
13	22.66		22.6600	513.47560000		0.000000000
14	21.85		21.8500	477.42250000		0.000000000

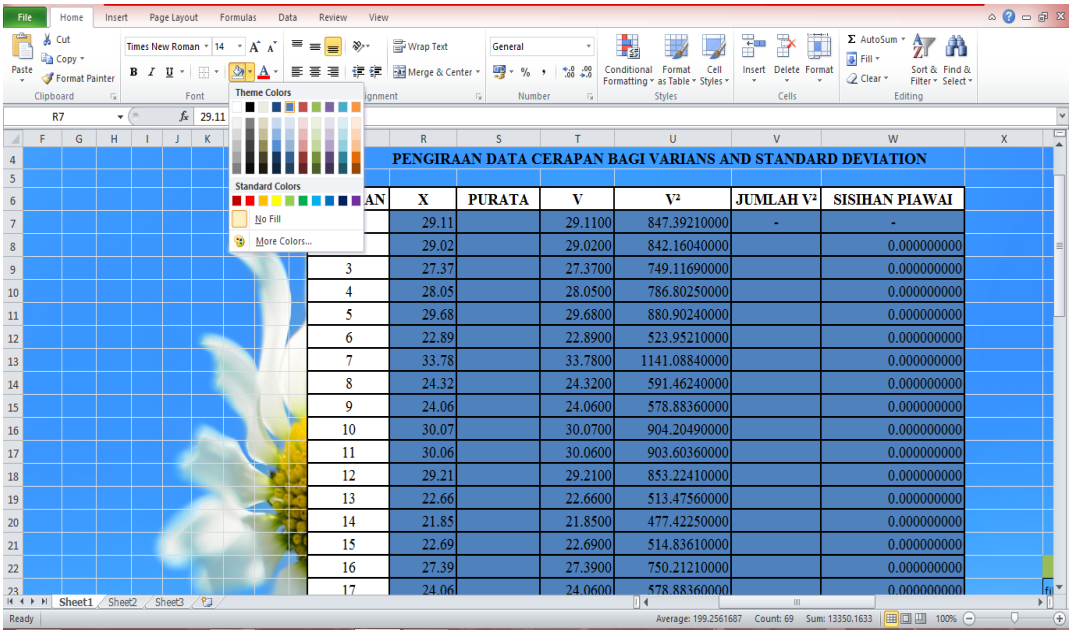
25. The result…



PENGIRAAN DATA CERAPAN BAGI VARIANS AND STANDARD DEVIATION

CERAPAN	X	PURATA	V	V²	JUMLAH V²	SISIHAN PIAWAI
1	29.11		29.1100	847.39210000	-	-
2	29.02		29.0200	842.16040000		0.000000000
3	27.37		27.3700	749.11690000		0.000000000
4	28.05		28.0500	786.80250000		0.000000000
5	29.68		29.6800	880.90240000		0.000000000
6	22.89		22.8900	523.95210000		0.000000000
7	33.78		33.7800	1141.08840000		0.000000000
8	24.32		24.3200	591.46240000		0.000000000
9	24.06		24.0600	578.88360000		0.000000000
10	30.07		30.0700	904.20490000		0.000000000
11	30.06		30.0600	903.60360000		0.000000000
12	29.21		29.2100	853.22410000		0.000000000
13	22.66		22.6600	513.47560000		0.000000000
14	21.85		21.8500	477.42250000		0.000000000

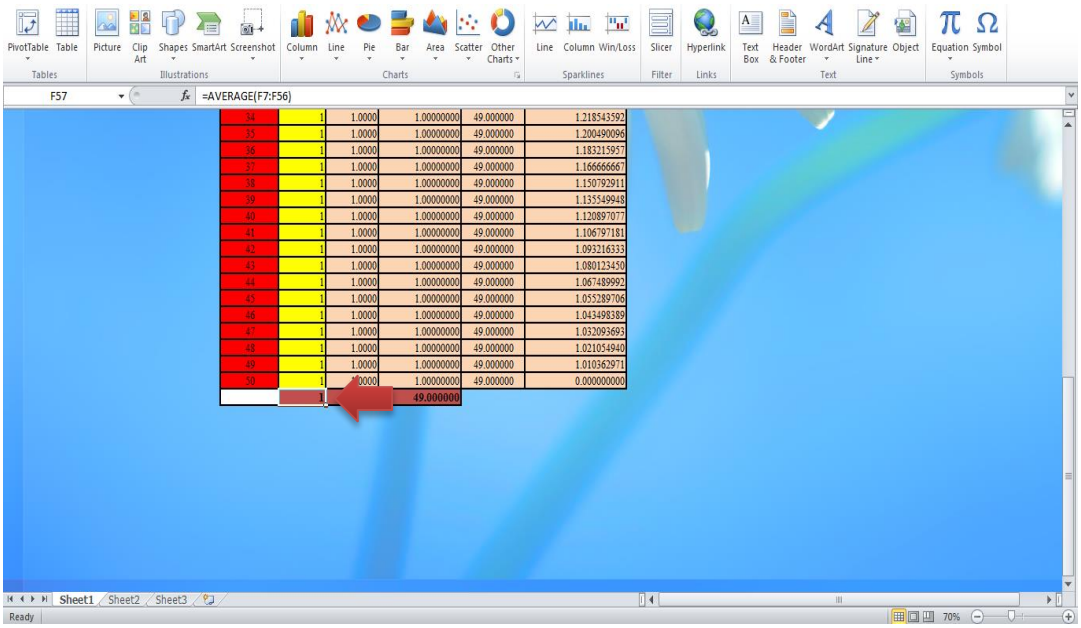
26. Change appearance colour.



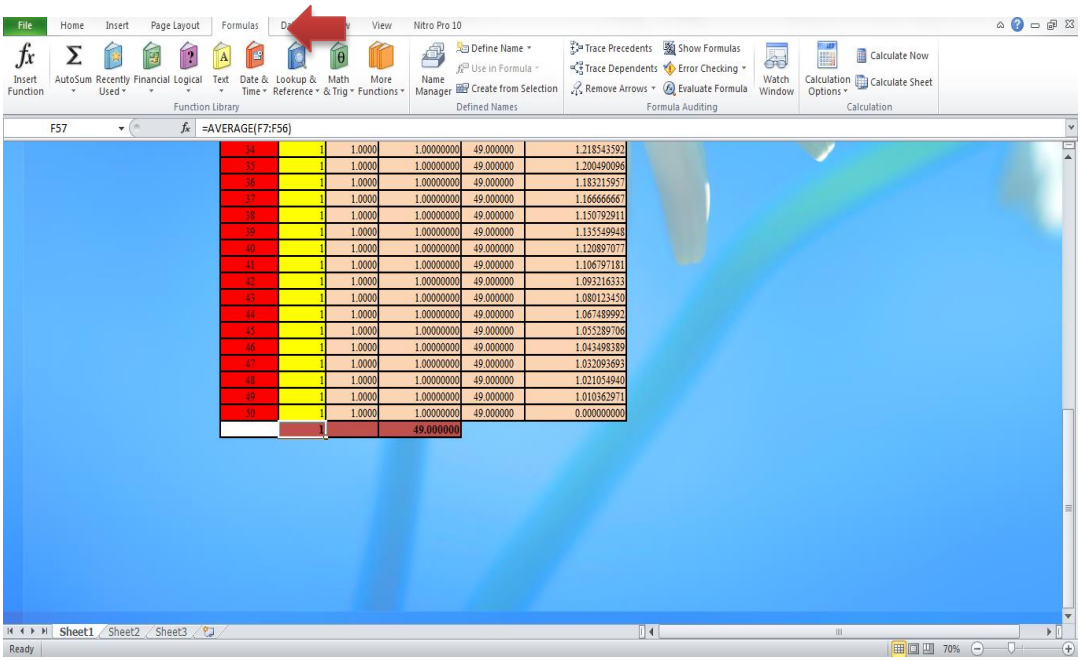
PENGIRAAN DATA CERAPAN BAGI VARIANS AND STANDARD DEVIATION

	X	PURATA	V	V²	JUMLAH V²	SISIHAN PIAWAI
	29.11		29.1100	847.39210000	-	-
	29.02		29.0200	842.16040000		0.000000000
3	27.37		27.3700	749.11690000		0.000000000
4	28.05		28.0500	786.80250000		0.000000000
5	29.68		29.6800	880.90240000		0.000000000
6	22.89		22.8900	523.95210000		0.000000000
7	33.78		33.7800	1141.08840000		0.000000000
8	24.32		24.3200	591.46240000		0.000000000
9	24.06		24.0600	578.88360000		0.000000000
10	30.07		30.0700	904.20490000		0.000000000
11	30.06		30.0600	903.60360000		0.000000000
12	29.21		29.2100	853.22410000		0.000000000
13	22.66		22.6600	513.47560000		0.000000000
14	21.85		21.8500	477.42250000		0.000000000
15	22.69		22.6900	514.83610000		0.000000000
16	27.39		27.3900	750.21210000		0.000000000
17	24.06		24.0600	578.88360000		0.000000000

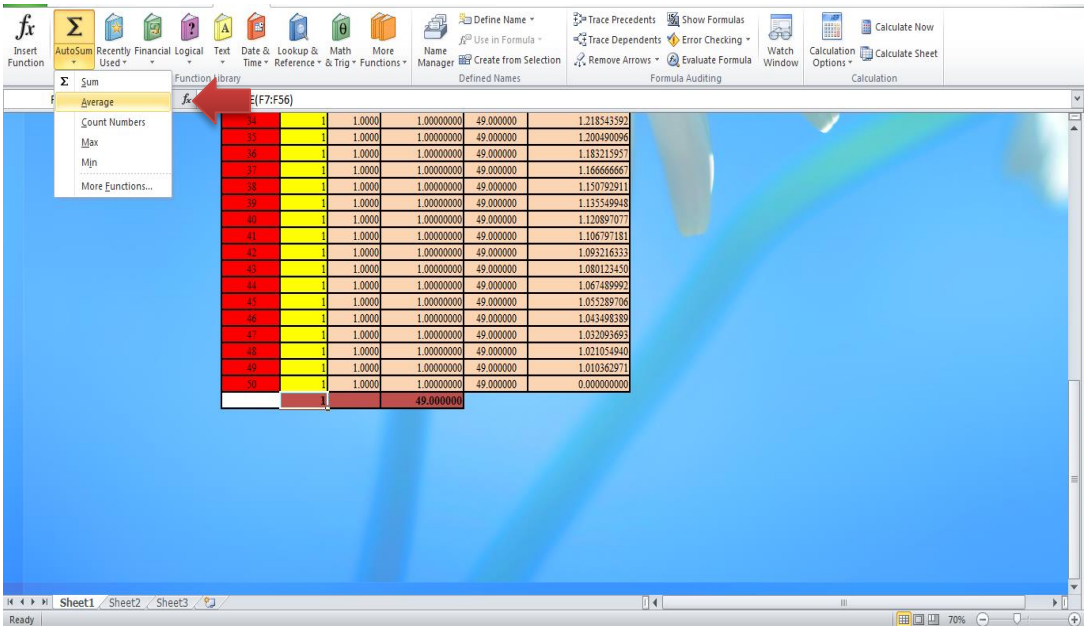
27. to get average data → click the box that needed



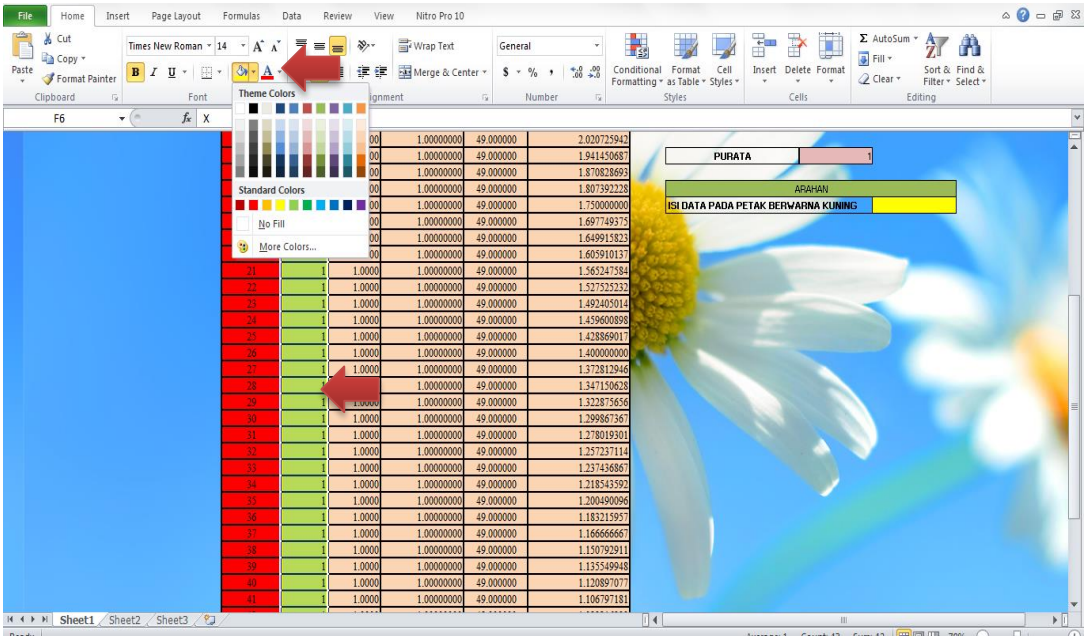
28. Choose formula….



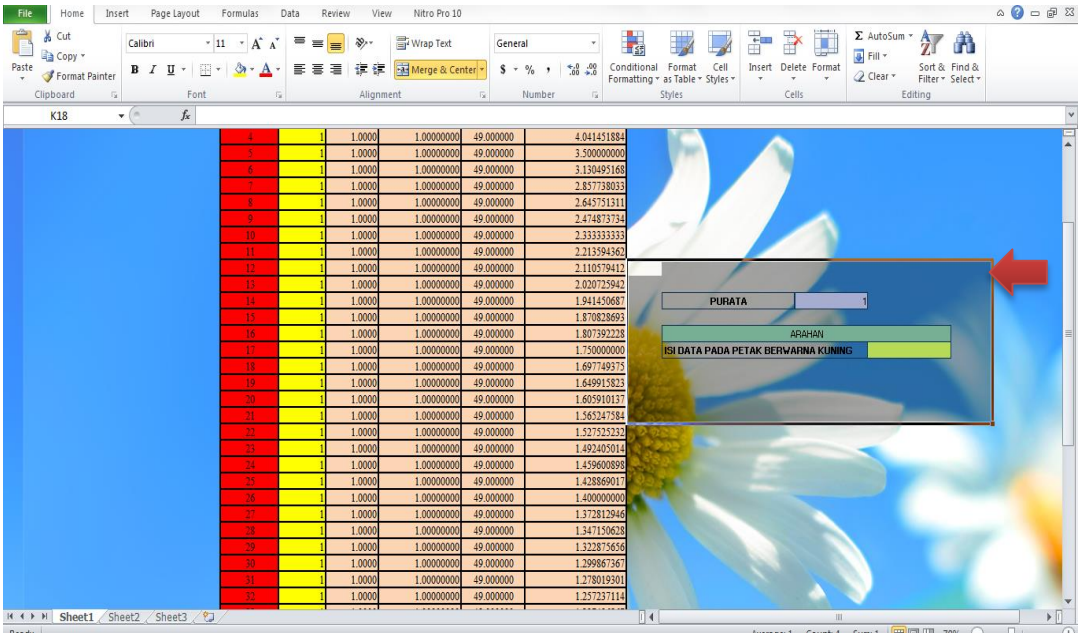
29. Click at the “autosum” and choose“average”.



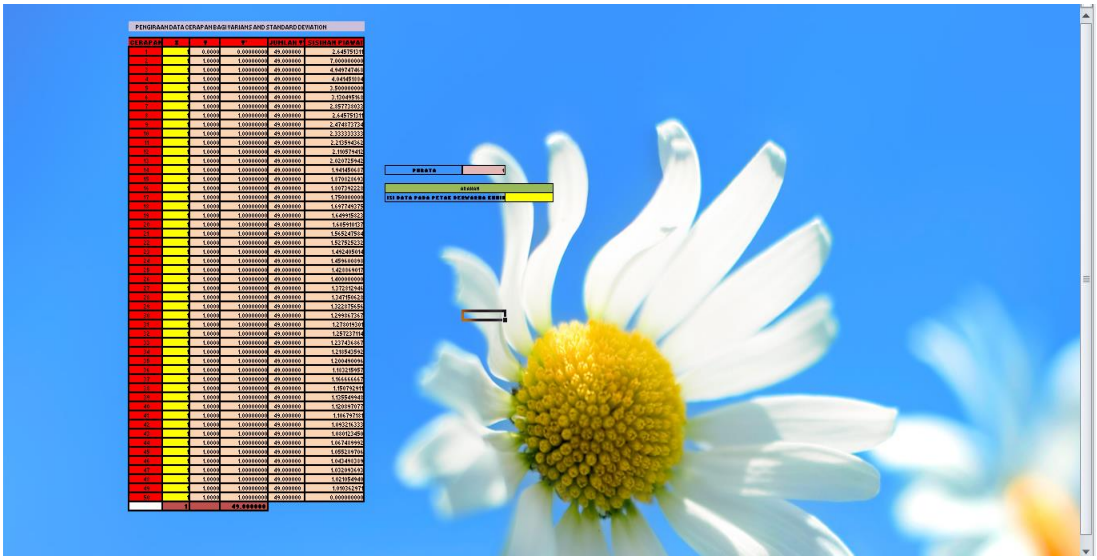
30. Colour that box needed with choose all box tersebut and click at “fill colour”



31. Make one space for program instruction



32. Full result to develop program



3.4 Allotment of duties

NAME	DUTIES
MOHAMMAD AIZAT BIN MISMAN	✓ Desingning and explorer Microsoft excel research for programming ✓ Print screen each of method that produced programming ✓ Find the idea for chapter one
MOHAMAD HAFIZUDDIN BIN MOHMED ZIN	✓ Desingning and explorer Microsoft excel research for programming ✓ Print screen each of method that produced programming ✓ Find the idea for chapter one
MUHAMMAD FATHI HELMIE BIN NOR AZNI	✓ Handle the quationnaire and test for calculating in mannualy ✓ Make the analysis for quationnaire. ✓ Analysis data
MUHAMAD BADRUN BIN JOHARI	✓ Find research methodology for chapter three ✓ Research for literature review

Table 3.3 table of duties

3.5 Conclusion

This chapter describe how the study was conducted based on the procedure that have been discussed . This study is descriptive research to see if the evaluation of lecture or the parties involved on the programming that has built. The study examined the extent to which a program of system that has been developed to help students in use of this programming .

CHAPTER 4

ANALYSIS AND DISCUSSION

4.1 INTRODUCTION

In this chapter we explain the relates to the successful development of the program that we have made over the time period specified. This program successfully developed despite the problems that arise during the production of the program be made. In this chapter we also make analysis on Microsoft Excel-based program development and analysis of the use of the program in terms of time. Next, describe how to use this program and its advantages

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4.2 SUCCESS IN PRODUCING PROGRAMS

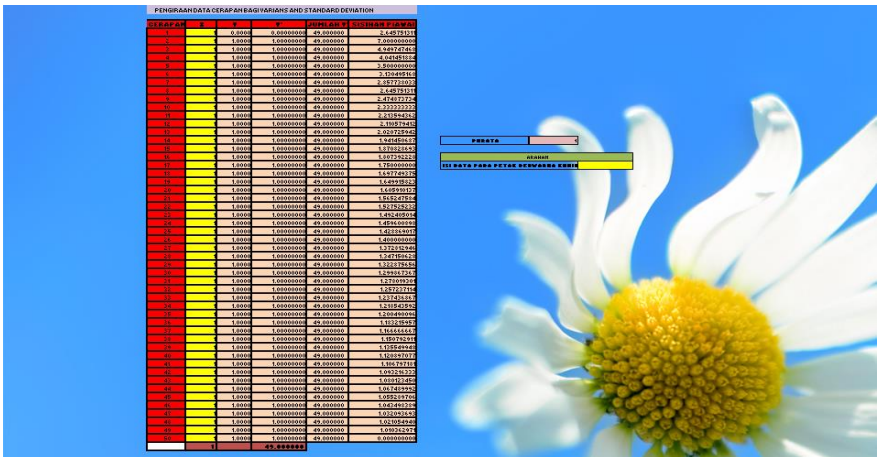


Figure 4.1:Iimage full program

In the production program there are some aspects that were taken into account in the success of the program. Among the aspects involved are the problems encountered in manual calculations to find the standard deviation and variance. The next objective of the study was also involved in the production of this program.

In this project the production assistance of experts also played an important role as a reference to develop this program. Reference from outside also be important in the production program.

Problems were also encountered in the success production of this program. Among the problem is are not a skilled in using Microsoft Excel program. In terms of time as well as one of the causes of problems in the production program as an example of a hectic work schedule, so the program can not be produced regularly.

4.3 ANALYSIS OF PROGRAM

This analysis explain the ways and methods to use the program to calculate the standard deviation and variance. The data required is the distance from the observed data works trilateration.

4.3.1 The method and how to use the program

1. Open program with “click” twice

Figure 4.2: how to open

2. Display program will be show…

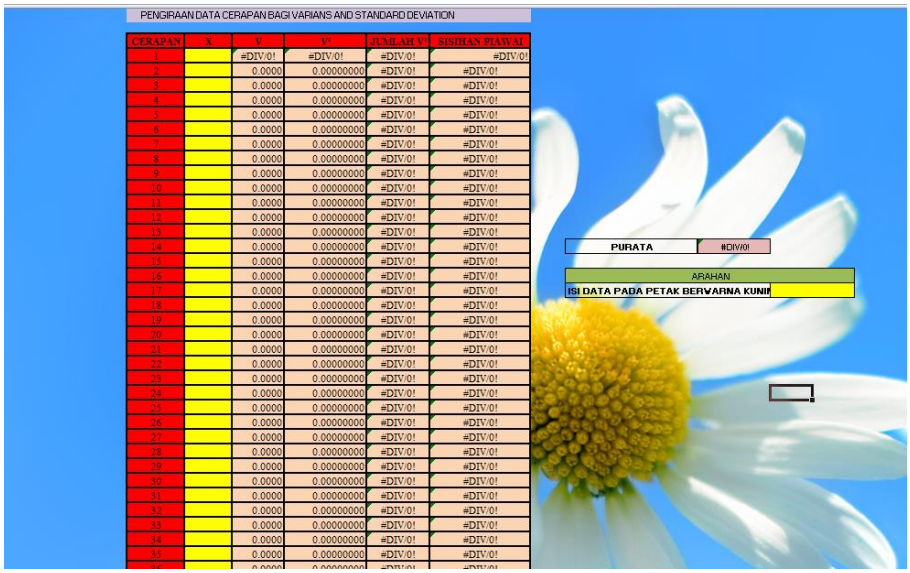
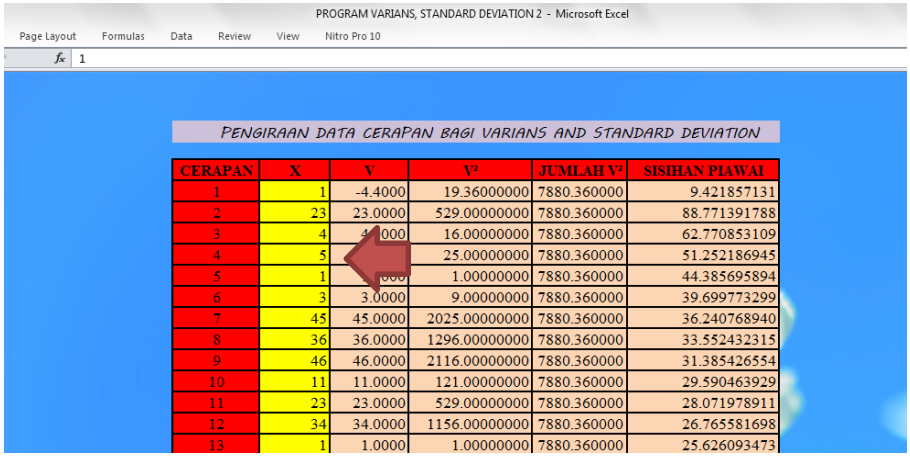


Figure 4.3: display program

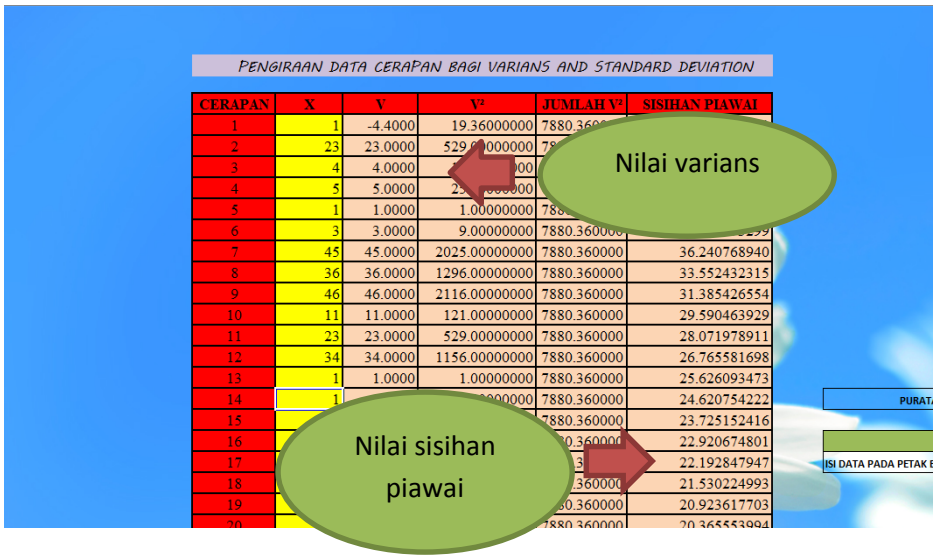
3. Put the data that needed at box …



CERAPAN	X	V	V²	JUMLAH V²	SISIHAN PIAWAI
1	1	-4.4000	19.36000000	7880.360000	9.421857131
2	23	23.0000	529.00000000	7880.360000	88.771391788
3	4	4.0000	16.00000000	7880.360000	62.770853109
4	5		25.00000000	7880.360000	51.252186945
5	1		1.00000000	7880.360000	44.385695894
6	3	3.0000	9.00000000	7880.360000	39.699773299
7	45	45.0000	2025.00000000	7880.360000	36.240768940
8	36	36.0000	1296.00000000	7880.360000	33.552432315
9	46	46.0000	2116.00000000	7880.360000	31.385426554
10	11	11.0000	121.00000000	7880.360000	29.590463929
11	23	23.0000	529.00000000	7880.360000	28.071978911
12	34	34.0000	1156.00000000	7880.360000	26.765581698
13	1	1.0000	1.00000000	7880.360000	25.626093473

Figure 4.4 :insert data

4. Value of variance and standard deviation automatically calculate.



CERAPAN	X	V	V²	JUMLAH V²	SISIHAN PIAWAI
1	1	-4.4000	19.36000000	7880.360	
2	23	23.0000	529.00000000	78	
3	4	4.0000			
4	5	5.0000			
5	1	1.0000	1.00000000	788	
6	3	3.0000	9.00000000	7880.360000	
7	45	45.0000	2025.00000000	7880.360000	36.240768940
8	36	36.0000	1296.00000000	7880.360000	33.552432315
9	46	46.0000	2116.00000000	7880.360000	31.385426554
10	11	11.0000	121.00000000	7880.360000	29.590463929
11	23	23.0000	529.00000000	7880.360000	28.071978911
12	34	34.0000	1156.00000000	7880.360000	26.765581698
13	1	1.0000	1.00000000	7880.360000	25.626093473
14	1			7880.360000	24.620754222
15				7880.360000	23.725152416
16				0.360000	22.920674801
17				3	22.192847947
18				.360000	21.530224993
19				0.360000	20.923617703
20				7880.360000	20.365553994

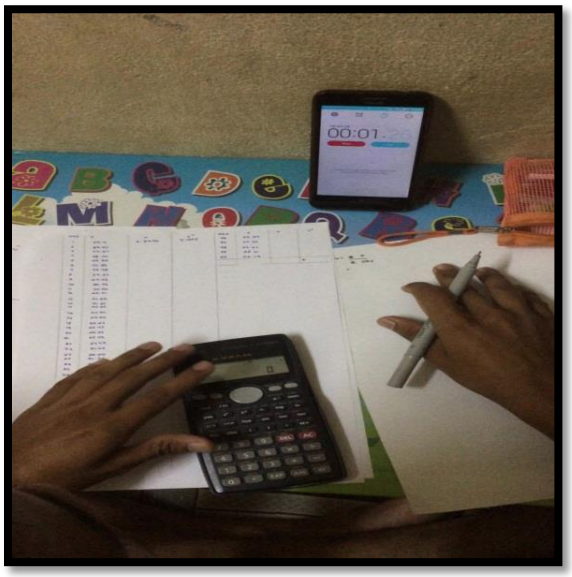
Figure 4.5:result the calculation

4.3.2 The advantage of using a program developed

- Minimize the error calculation
- Save the time

4.4 COMPARATIVE ANALYSIS OF TIME

Comparative analysis of time is the analysis we have done to calculate manually and use a program that we produce. As figure 4.6 shows a respondent had to manually calculate the observed data to get the variance and standard deviation values. Figure 4.6 also shows time beginning of the calculations performed and recorded the last time the respondent is ready to count.



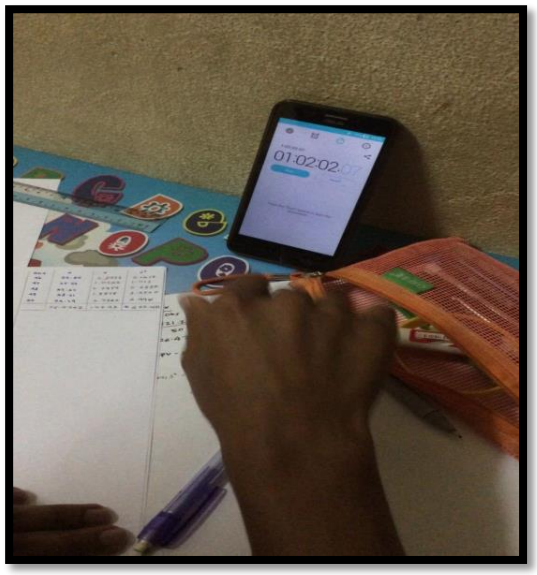


Figure 4.6:start calculation manually *Figure 4.7: end calculation manually*

Figure 4.7 also shows the last recorded time to get the variance and standard deviation which is 1:02:00 minutes. In Figure 4.8 also shows that the respondent counts the observed data to get the variance and standard deviation. The time recorded by the students to get the variance and standard deviation is 00: 1: 20 minutes

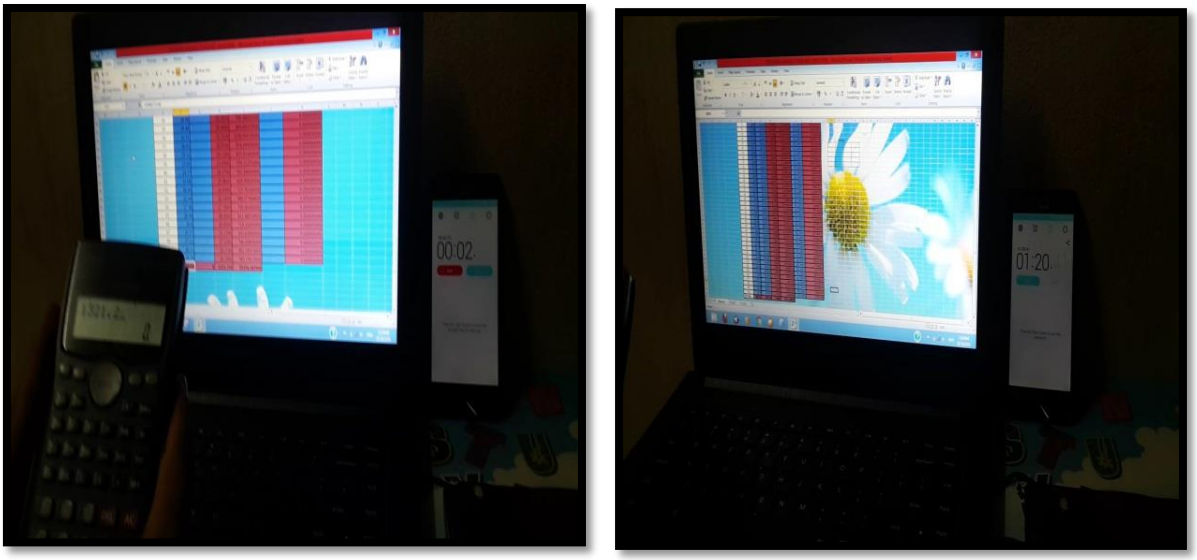


Figure 4.8: calculation using programmme from start until end

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

Program to calculate variance and standard deviation is made using Microsoft excel and data obtained from the existing data surveying for subject survey adjustment. This program is specially made for student diploma land surveying who took course survey adjustment in polytechnic Merlimau, Melaka.

According to objective program to calculate standard deviation and variance to save time of variance and standard deviation calculation and also to help student who have taken the subject of survey adjustment.

We have made an analysis of a program that has produced namely program to calculate the variance and standard deviation with carrying out tests on a survey of students taking the subject of survey adjustment. The test was be made by asking students to counts the distance of 50 observation data to obtain the standard deviation and variance manually and by using the program. The length of time taken when the test is be made. In conclusion calculations manually rather take a long time compared to using the program developed.

From these tests we have achieved our primary objective to save time students in calculating the standard deviation and variance. This program can be used while in the classroom to assist learning and teaching.

Finally we prospects for this research will be continued by other student and this excel programming continuously used by student or maybe lecture for their teaching lesson in future because every body can use it.