Awarding Body:
Programme Name:
Module Name (and Part if applicable):
Assessment Title:
Student Number:
Tutor Name:
Word Count: Please refer to the Word Count Policy on your Module Page for guidance

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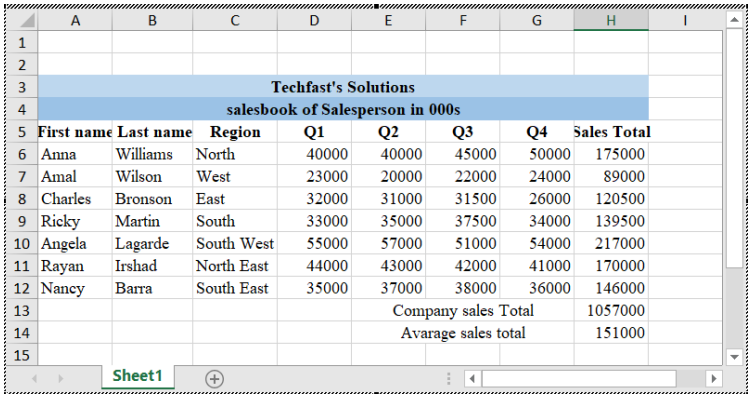
Introduction

Math is used in every part of our life, including in business and daily activities at home and elsewhere (Asuaga, 2018). We need to be numerate since so many of our decisions in life are based on number data. The assignment requires some numerical solutions like summation, average, frequency distribution analysis for understanding the real importance of numeracy in our daily life. It also requires the use of digital knowledge for analysing various types of data. The use of IT for analysing numerical data and providing a simple process of serving those data through multiple charts is also provided in the report. Finally, the report includes the processes of different measures of central tendency and how they are important in decision making of a manager or an organisation.

Task 01

Week 05

The Excel Spreaddsheet provided in the question is recreated here.



	A	B	C	D	E	F	G	H	I
1									
2									
3					Techfast's Solutions				
4					salesbook of Salesperson in 000s				
5	First name	Last name	Region	Q1	Q2	Q3	Q4	Sales Total	
6	Anna	Williams	North	40000	40000	45000	50000	175000	
7	Amal	Wilson	West	23000	20000	22000	24000	89000	
8	Charles	Bronson	East	32000	31000	31500	26000	120500	
9	Ricky	Martin	South	33000	35000	37500	34000	139500	
10	Angela	Lagarde	South West	55000	57000	51000	54000	217000	
11	Rayan	Irshad	North East	44000	43000	42000	41000	170000	
12	Nancy	Barra	South East	35000	37000	38000	36000	146000	
13						Company sales Total		1057000	
14						Avarage sales total		151000	
15									

Sheet1

I. Calculation of Anna, Amal, Charles, Ricky, Angela, Rayan and Nancy's individual total number of sales through the formula of Excel

First, we will calculate Anna's total number of sales through the SUM formula in column number H6.

The formula applied is, '=SUM(D6:G6)' (Hrehova, 2017)

After applying the formula we get a total of 175000 sales for Anna. The remaining ones for the other 6 people can be found by simply dragging the cursor from H6 to H12 or one can use the individual formula for each person.

The formula to calculate total sales of Amal, '=SUM(D7:G7)'

The formula to calculate total sales of Charles, '=SUM(D8:G8)'

The formula to calculate total sales of Ricky, '=SUM(D9:G9)'

The formula to calculate total sales of Angela, '=SUM(D10:G10)'

The formula to calculate total sales of Rayan, ' =SUM(D11:G11)'

The formula to calculate total sales of Nancy, '=SUM(D12:G12)'

This formula calculates total sales for individuals.

Techfast's Solutions							
sales book of Salesperson in 000s							
First name	**Last name**	**Region**	**Q1**	**Q2**	**Q3**	**Q4**	**Sales Total**
Anna	Williams	North	40000	40000	45000	50000	175000
Amal	Wilson	West	23000	20000	22000	24000	89000
Charles	Bronson	East	32000	31000	31500	26000	120500
Ricky	Martin	South	33000	35000	37500	34000	139500
Angela	Lagarde	South West	55000	57000	51000	54000	217000
Rayan	Irshad	North East	44000	43000	42000	41000	170000
Nancy	Barra	South East	35000	37000	38000	36000	146000
				Company sales Total			1057000
				Average sales total			151000

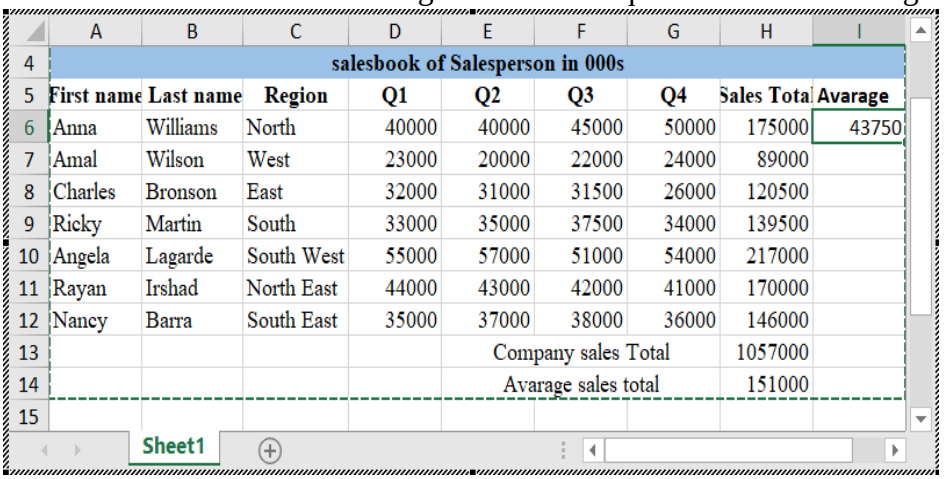
II. Calculation of Anna, Amal, Charles, Ricky, Angela, Rayan and Nancy's individual average sales amount through Excel formula.

Excel uses the AVERAGE formula for the purpose of calculating the average of any numerical data provided.

Here, to calculate Anna's average sales of the given 4 quarters, first, we have to select the 'I6' column. Then enter the average formula which is,

=AVERAGE(D6:G6) (Hrehova, 2017)

The formula will then calculate the average sales of four quarters Anna resulting in 43750.



	A	B	C	D	E	F	G	H	I
4	salesbook of Salesperson in 000s								
5	First name	Last name	Region	Q1	Q2	Q3	Q4	Sales Total	Avarage
6	Anna	Williams	North	40000	40000	45000	50000	175000	43750
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11	Rayan	Irshad	North East	44000	43000	42000	41000	170000	
12	Nancy	Barra	South East	35000	37000	38000	36000	146000	
13					Company sales Total			1057000	
14					Avarage sales total			151000	
15									

Sheet1

The formulas for an individual average of 4 quarters of Amal, Charles, Ricky, Angela, Rayan and Nancy are provided below-

Techfast's Solutions								
sales book of Salesperson in 000s								
First name	**Last name**	**Region**	**Q1**	**Q2**	**Q3**	**Q4**	**Sales Total**	**Avarage**
Anna	Williams	North	40000	40000	45000	50000	175000	43750
Amal	Wilson	West	23000	20000	22000	24000	89000	
Charles	Bronson	East	32000	31000	31500	26000	120500	
Ricky	Martin	South	33000	35000	37500	34000	139500	
Angela	Lagarde	South West	55000	57000	51000	54000	217000	
Rayan	Irshad	North East	44000	43000	42000	41000	170000	
Nancy	Barra	South East	35000	37000	38000	36000	146000	
				Company sales Total			1057000	
				Average sales total			151000	

Calculation of Amal's average sales, '=AVERAGE(D7:G7)'

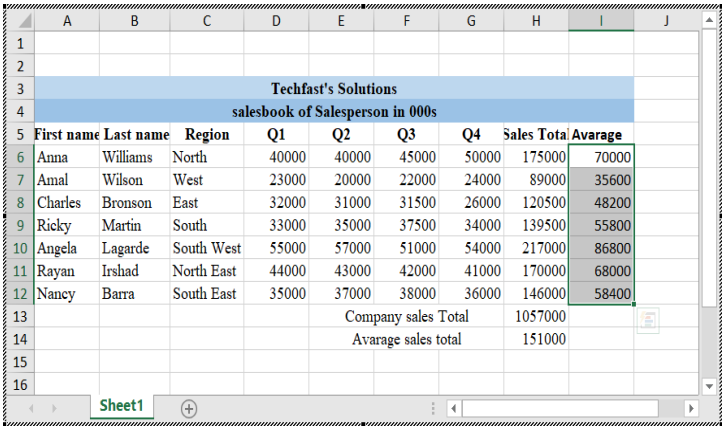
Calculation of Charles's average sales, '=AVERAGE(D8:G8)'

Calculation of Ricky's average sales, '=AVERAGE(D9:G9)'

Calculation of Angela's average sales, '=AVERAGE(D10:G10)'

Calculation of Rayan's average sales, '=AVERAGE(D11:G11)'

Calculation of Nancy's average sales, '=AVERAGE(D12:G12)'



Techfast's Solutions								
sales book of Salesperson in 000s								
First name	Last name	Region	Q1	Q2	Q3	Q4	Sales Total	Avarage
Anna	Williams	North	40000	40000	45000	50000	175000	43750
Amal	Wilson	West	23000	20000	22000	24000	89000	22250
Charles	Bronson	East	32000	31000	31500	26000	120500	30125
Ricky	Martin	South	33000	35000	37500	34000	139500	34875
Angela	Lagarde	South West	55000	57000	51000	54000	217000	54250
Rayan	Irshad	North East	44000	43000	42000	41000	170000	42500
Nancy	Barra	South East	35000	37000	38000	36000	146000	36500
				Company sales Total			1057000	
				Average sales total			151000	

The table provides the individual average results of each salesperson using the mentioned formula.

Week 07

Data might include student grades, temperature differences across towns, earned points in a volleyball match, and so on. We must present data in a relevant way after collecting it in order to have a better insight (Shah, 2018). The frequency distribution method is used to aggregate the acquired data into tables.

The question has provided some ungrouped data collected from a survey conducted by Arden University. The survey includes shoe sizes of 20 students. The data provided are given below-

10, 11, 12, 9, 7, 6, 8, 12, 4, 6, 10, 12, 13, 10, 10, 6, 7, 8, 10, 10

Here, we will form a frequency distribution table using the data provided.

There are 9 distinct sizes provided in the survey. The distinct sizes are-

4, 6, 7, 8, 9, 10, 11, 12, 13 with a span from the lowest size of 4 to the highest size of 13. The table is provided below-

Frequency Distribution Table	
Size	**Frequency**
4	1
6	3
7	2
8	2
9	1
10	6
11	1
12	3
13	1
Total	**20**

Finding the mean of the data using frequency distribution table:

Frequency distribution table assists in finding out the mean of a dataset easily (Glassen, Oertzen and Konovalov, 2018). The table above provides different types of sizes and the frequency the sizes have. By using the following formula the mean of the distribution can be calculated-

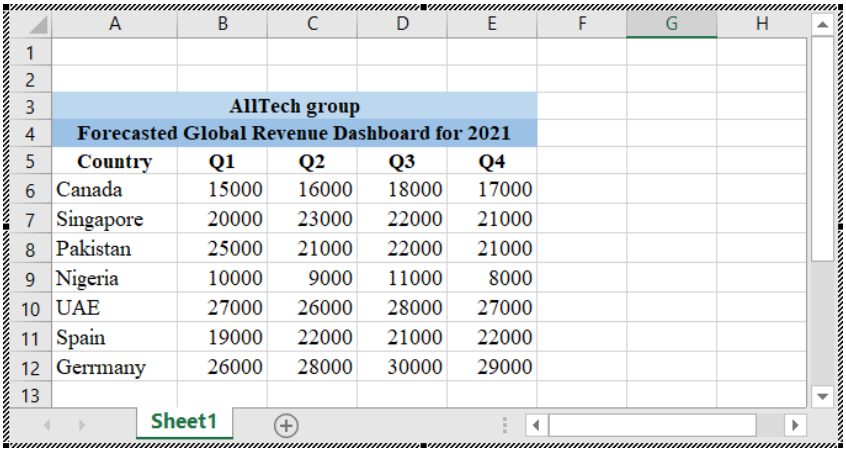
Mean= the sum of (Size*Frequency)/Total Frequency

Frequency Distribution Table		
Size	**Frequency**	**Size*Frequency**
4	1	4
6	3	18
7	2	14
8	2	16
9	1	9
10	6	60
11	1	11
12	3	36
13	1	13
Total	**20**	**181**
Mean		**9.05**

In the table, first, we have calculated the amount of each size multiplied by the frequency. Then, all the amounts are accumulated totalling the number 181. Dividing the sum amount with the total frequency we can get the mean (Shishkina, 2021) that is, 181/20= 9.05.

Task 02

The below spreadsheet is provided as per the instruction.



The table of the prepared spreadsheet is provided below.

AllTech group				
Forecasted Global Revenue Dashboard for 2021				
Country	**Q1**	**Q2**	**Q3**	**Q4**
Canada	15000	16000	18000	17000
Singapore	20000	23000	22000	21000
Pakistan	25000	21000	22000	21000
Nigeria	10000	9000	11000	8000
UAE	27000	26000	28000	27000
Spain	19000	22000	21000	22000
Gerrmany	26000	28000	30000	29000

Question 01

a) The revenues are projected in the form of four quarters. Summing up all the quarters it shows that the top three countries that earned the most annual revenues are Germany, UAE and Pakistan.

In descending order, the top 3 countries are Pakistan, UAE and Germany. Alltech group's projection for Pakistan region for the 4 quarters are 25000, 21000, 22000 and 21000 in order leading to the annual projection of 89000 in total. The top quarter for Pakistan is the first one earning 25000. Summing with the amount, Pakistan stands at the 3rd position in the table. UAE becomes the second country in the annual projected table. UAE earned an

accumulation of 108000 over the four quarters as each earned 27000, 26000, 28000 and 27000. The third quarter was the most successful one for UAE.

AllTech group					
Forecasted Global Revenue Dashboard for 2021					
Country	**Q1**	**Q2**	**Q3**	**Q4**	**Total Revenue**
Germany	26000	28000	30000	29000	113000
UAE	27000	26000	28000	27000	108000
Pakistan	25000	21000	22000	21000	89000
Singapore	20000	23000	22000	21000	86000
Spain	19000	22000	21000	22000	84000
Canada	15000	16000	18000	17000	66000
Nigeria	10000	9000	11000	8000	38000

The highest revenue of Altech group comes from Germany with 113000. And the top quarter for Germany is the third one with 30000 quarterly. The first quarter brings in 26000 and the other two, second and fourth ones, brings in 28000 and 29000 respectively.

b) The table provides the overall amount each quarter has projected globally. From the table, it will be easy to analyse and find out the most earning quarter among all (Aitkin, 2016).

AllTech group					
Forecasted Global Revenue Dashboard for 2021					
Country	**Q1**	**Q2**	**Q3**	**Q4**	**Annual Revenue**
Gerrmany	26000	28000	30000	29000	113000
UAE	27000	26000	28000	27000	108000
Pakistan	25000	21000	22000	21000	89000
Singapore	20000	23000	22000	21000	86000
Spain	19000	22000	21000	22000	84000
Canada	15000	16000	18000	17000	66000
Nigeria	10000	9000	11000	8000	38000
Quarterly Total	142000	145000	152000	145000	584000

The accumulated annual revenue that Altech Group earned globally is 584000. The first quarter has earned 142000 from the 9 countries illustrated in the table that apparently is the lowest-earning quarter of all. The second and the third quarter have earned an equal amount that is 145000. These two quarters have earned the second-highest amount. And the quarter that has earned the most revenue is the third quarter equaling to the amount of 152000 from

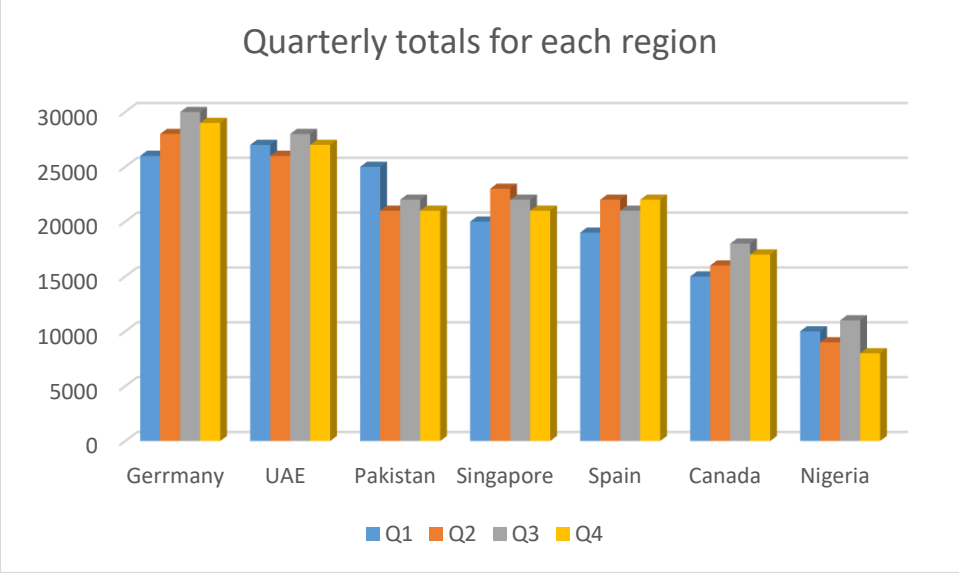
all 9 countries. The table clearly shows that all the countries in an accumulation have earned the most amount in the third quarter making it the most successful one.

Question 02

a) A bar chart is very useful for distributing data in a manner that is easy and effective to serve (CHOI and PARK, 2017). Bar chart collects data provided and arrange them in the simplest way that is understandable for all.

Here, the table provides quarterly projected revenues of 9 countries that are from three regions globally. the three regions provided in Altech company's global revenue table are Europe, Asia and Africa. Altech company has distributed its global planning through the span of three continents. Germany, Spain and Canada are from Europe. Nigeria is the only African country and the other three countries, UAE, Pakistan and Singapore are from the Asian continent.

Below the descriptive analysis of each region and regional country is provided-



Among the European countries, Germany has earned the most amount of money in all the quarters projected. After Germany, the second most earning one in Spain. Germany, in the first quarter, has earned 26000 which is 7000 more than Spain (19000) and 11000 more than the other country of Europe, Canada (15000). And all three countries have accumulatively earned 60000. In the second quarter, the lowest income projected is 16000 earned from Canada. Spain has earned 22000 in the second quarter which is 6000 higher than Canada and 6000 lower than Germany that has the highest amount of 28000. The accumulative total of the quarter is 66000. In the third quarter, Germany, Spain and Canada have earned 30000, 21000 and 18000 respectively and the total earnings are 69000. Revenues of the fourth quarter are 29000, 22000 and 17000 earned by Germany, Spain and Canada. In total it is 68000.

Among the Asian countries, the highest revenue projecting country is UAE. The lowest one is Singapore and the one in the middle is Pakistan. UAE has earned 27000, only 200 more than Pakistan (25000) and 7000 more than Singapore (20000) in the first quarter

getting a total of 72000 regionally. In the second quarter, they earned 70000 regionally, 2000 less than the previous one. The third quarter has earned 72000, the same as the first quarter where UAE, Pakistan and Singapore have earned 28000, 22000 and 22000 respectively. In the fourth quarter, all three countries have earned the lowest total of all, 69000.

Nigeria being the only country in Africa is leading the regional income as the same as its quarterly earnings, 10000, 9000, 11000 and 8000 in consecutive quarters. So, the highest regional income of Africa is in the third quarter, 11000.

Percentage Table				
Each region's quarterly earnings percentage				
Country	**Q1**	**Q2**	**Q3**	**Q4**
Europe	42.25	45.51	45.39	46.89
Asia	50.72	48.27	47.30	47.60
Africa	7.03	6.20	7.31	5.51

The table above shows the regional performance of three regions quarterly. Asia has the highest percentage of earnings with the percentage of 50.72, 48.27 and 47.30 and 47.60 respectively. Europe is competing with a very thin line of difference with 42.25, 45.51 and 45.39 and 46.89 respectively. The table clears that Asia has kept maintaining to earn the highest percentage in all the quarters. And Europe has become the second most earning region of the table. Africa has earned the lowest in all as having only one country, Nigeria, conducting Altech's business. The region has earned 7.03, 6.20, 7.31 and 7.60 percent of the total quarterly earnings.

b) A table has been created based on the regional income provided in the quarterly income of the 9 countries' earnings provided. The table has included each region's quarterly and annual income.

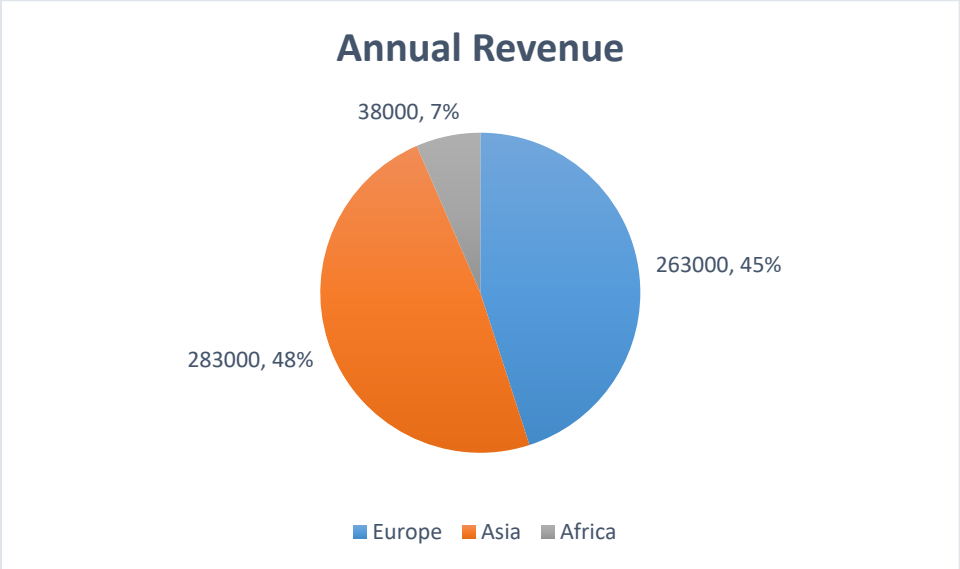
AllTech group					
Regional annual revenue					
Region	**Q1**	**Q2**	**Q3**	**Q4**	**Annual Revenue**
Europe	60000	66000	69000	68000	263000
Asia	72000	70000	72000	69000	283000
Africa	10000	9000	11000	8000	38000
Total	142000	145000	152000	145000	584000

As per Altech group's projected revenue table, the table above shows that the Europe region has earned a total annual revenue of 263000 and Asia has earned a total amount of 283000. At last, it shows the total annual revenue of the Africa region (38000) which is the lowest of all. So, the table specifies that the region taking the first position in earning the most annual revenue is the Asia region.

A pie chart is a form of a graph that uses a circular graph to represent data (Duan, Shao and Hu, 2018). The graph's pieces are proportionate to the percentage of the total in each

group. The "pie" as a whole represents 100 percent of one (Wong, 2014), and the "slices" of the pie represent pieces of that total. Pie charts show how a group of people is divided into smaller groups.

A pie chart has been created to analyse the annual income of the three regions where Altech group conducts its business globally. the chart includes the amount of each region's projected revenues and their percentage of the whole amount.



The chart gives a simplified view of the regional revenue Altech group earns. The global annual revenue of Altech company is 584000. In which, Asia region (283000) earns the highest percentage of all being 48%, nearly half of the whole revenue. Europe is also Altech's another top revenue source. It has earned a total amount of 263000 that is 45% of the total revenue earned by the Altech group. The revenue gap between Asia and Europe isn't much which is only 3%. But the revenue of Altech group from Africa region is very low, amounting to only 7 percentage of the whole revenue. The company has been conducting business in only one country of the whole region. It has so much opportunity for that region as the projected revenue shows a positive income flow (Gabaix and Landier, 2016).

The chart gives a clear view that Asia and Europe are Altech Company's base revenue sources. The two regions altogether provide 93 percent of the whole revenue stream. It also describes that Altech group is not dependant on one region only. It has created a portfolio of investments around the globe and expanded to other ones. The chart also gives a hint that Altech Company may not be as effective at conduction business in Africa as in other countries.

Question 03

Europe, Asia and Africa are the three regions where Altech group is conducting its business according to the table provided. Mean, median and mode can be used to analyse the revenues of the countries of these regions. The three countries of Europe have the mean of 263000/3=87867 and its median is 84000. The region's range of earnings is (113000-66000)=47000. Asia's three

countries' mean is (283000/3) = 94333 and median are 89000 and also the range is (108000-86000) = 22000. There is no mode as the frequencies are not repeated. The mean, median, mode and range measures are not applicable for Africa as it has only one country in its region.

As the CEO of the Altech group, I have to make many decisions based on the information I collect (Gabaix and Landier, 2016). The mean median and range analysis refers that the mean and median of both the regions are not far much which is not alarming. But the range of revenues of Europe is a bit much higher. As we know, the greater the range of any revenue stream is, the higher the risk of fall is. The information gathered describes that Asia has a relatively lower range of revenues among the three countries that means that Altech company has been able to maintain more efficiency in Asia.

Importance of mean, median and mode

Mean helps in reducing the possibility of misinterpretation one can make from reading data among the dataset thus the error in prediction can be minimized.

Median helps in realizing the middle point of a different range of data and is useful in open-end distribution as it does not get influenced by values that are extreme.

Examining data that are categorical can be evaluated by mode to get the best result as these help in making qualitative decision making.

Conclusion

Deriving information from a set of unaligned and ungrouped data is not a simple process. One has to know the correct way of turning those data into information so that he or she can perform analysis from the information collected. The report has helped in analysing different data that gives a necessary answer for questions asked. The report helps the reader in understanding various statistical formulas that can be used to analyse and make the decision as it has provided so. The report provides various charts that simplify the use of complex data and explain the relation of those data as required. All in all, the report reflects how our day to day work and decisions are benefitted from the use of IT and numerical analysis.

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salesbook of Salesperson in 000s								
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Angela	Lagarde	South West	55000	57000	51000	54000	217000	54250
Rayan	Irshad	North East	44000	43000	42000	41000	170000	42500
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				Company sales Total			1057000	
				Avarage sales total			151000	

AllTech group					
Forecasted Global Revenue Dashboard for 2021					
Country	**Q1**	**Q2**	**Q3**	**Q4**	**Annual Revenue**
Gerrmany	26000	28000	30000	29000	113000
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Singapore	20000	23000	22000	21000	86000
Spain	19000	22000	21000	22000	84000
Canada	15000	16000	18000	17000	66000
Nigeria	10000	9000	11000	8000	38000
Quarterly Total	142000	145000	152000	145000	584000