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BA BUSINESS MANAGEMENT

Assignment Title:

Component 2:

Essay

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Introduction

This assignment will highlight how various data analytics tools are used to analyse the information of an organisation related to sales and other elements. The analysis of data provides valuable insights into the performance and other aspects of an organisation and evaluates trends in the data variables, based on which informed decisions can be made. In part 1, the sales data of a UK-based e-commerce company will be analysed to find trends in sales per month, purchased items, and items purchased by customers per transaction, etc. based on these evaluations, the company will be recommended relevant strategies so that the profitability of the company can be increased. The entire analysis process will be conducted on MS Excel. In part 2, the survey data of a school will be analysed using SPSS and MS Excel. The number of male and female respondents, the number of students who get free lunch and those who don't, descriptive statistics, etc. will be evaluated. Also, the advantages and disadvantages of using SPSS and MS Excel will be presented, respectively.

Data handling and business handling are two interrelated processes that organisations perform to analyse data on various aspects. Data handling refers to the process in which data is collected, recorded, and presented in a way that is understandable for individuals. On the other hand, business intelligence is categorized as the process in which data is used and analysed so that organisations can make informed business decisions (Stedman and Burns, 2023).

Part 1

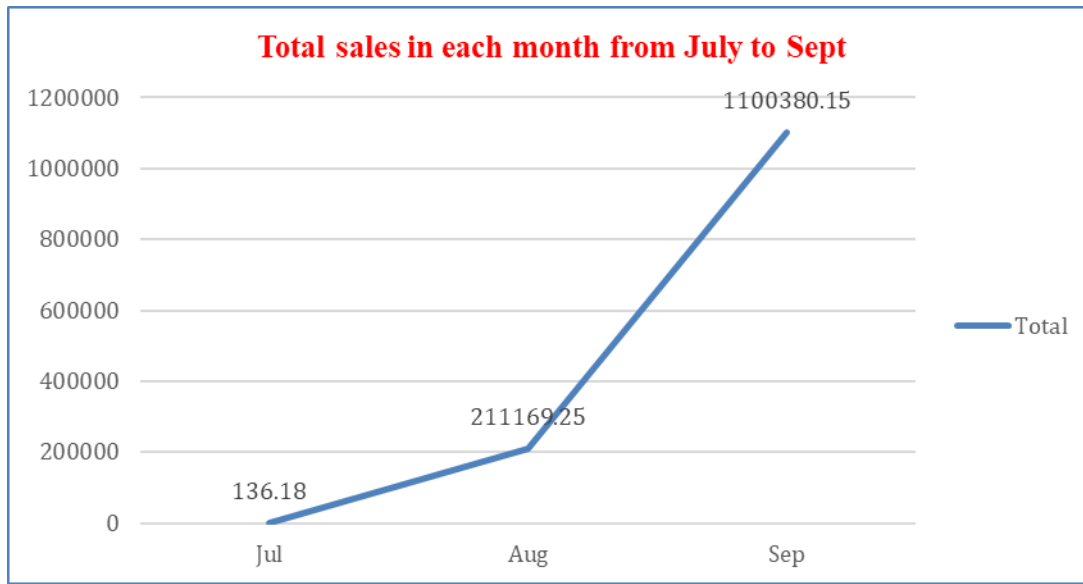
1. Sales trend over the months

To derive the trends in sales in different months, the following pivot table has been produced-

Month	Total
Jul	136.18

Aug	211169.25
Sep	1100380.15
Grand Total	1311685.58

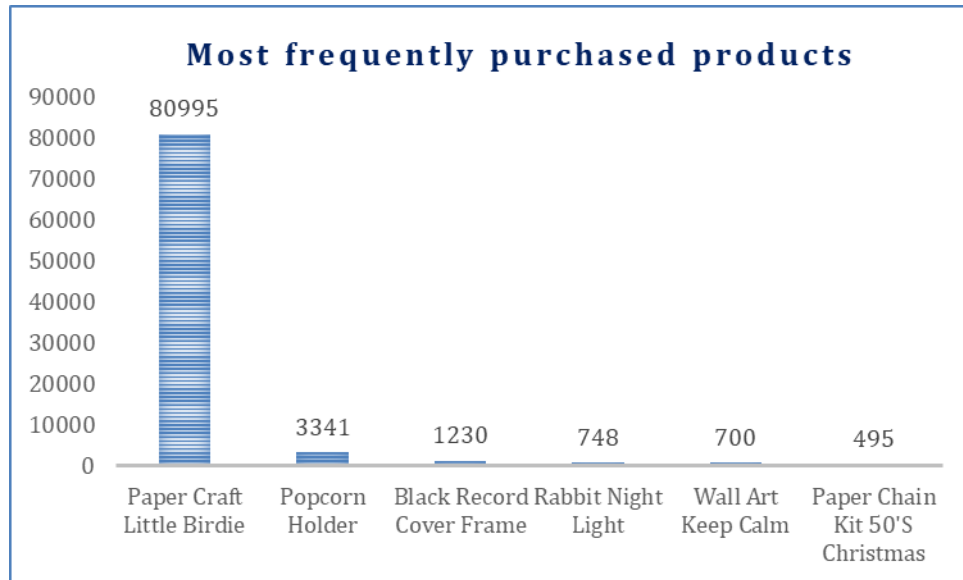
A line chart has been prepared using the information of the above table –



The above chart shows a positive trend in sales per month. Total sales in September have been much higher compared to sales in July and August. In July, the company raised total sales amounting to £ 136.18 only. However, in August the company generated a total sales revenue of £211,169.25. In September, the company raised total revenue of £11,00,380.15 from sales.

2. Most frequently purchased products

The most frequently purchased products have been analysed by producing a relevant pivot table. A column chart has been produced using the information of the pivot table that has been attached below –



The above column chart shows five most frequently purchased products by customers. Paper craft Little Birdie is the most frequently purchased product. A total of 80,995 quantities of this product has been purchased by the customers. The next most frequently purchased product is the popcorn holder. A total of 3,341 quantities of paper holders have been purchased by customers. The customers also purchased 1,230 quantities of Black Record Cover Frame. 748 quantities of Rabbit Night Lights were purchased. 700 quantities of wall art keep calm product has been purchased. 495 quantities of Paper Chain kits for Christmas have been sold by the company.

3. Products purchased by customers in each transaction

The following Pivot table shows the number of quantities purchased by customers in each transaction-

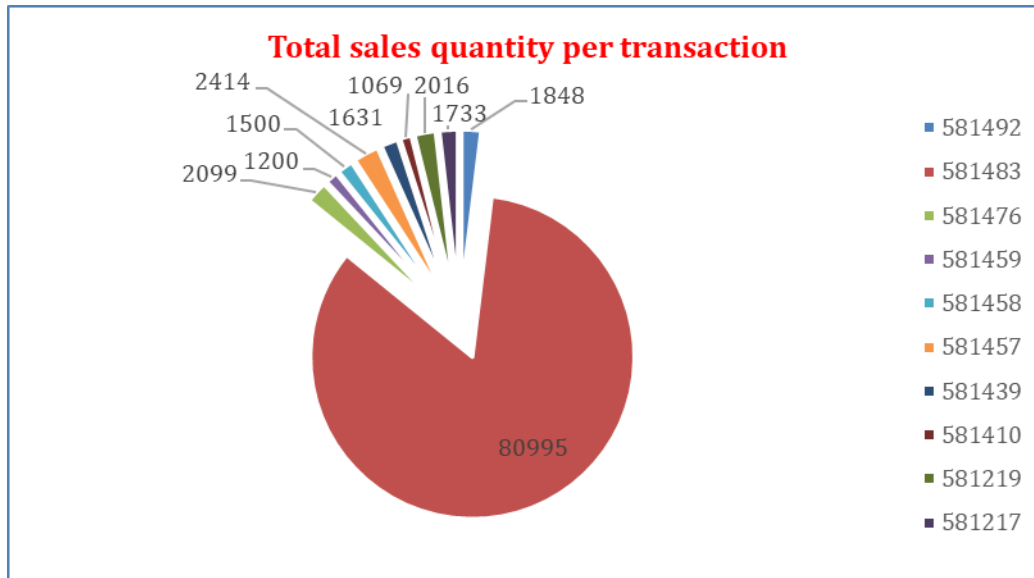
Transaction No	Total
581587	105
581586	66
581585	278
581584	120
581583	76
581582	18
581581	22
581580	77
581579	466
581578	481
581574	86

581572	60
581571	270
581570	95
581567	317
581566	144
581538	107
581516	171
581514	261
581502	154
581501	692
581500	10
581498	686
581497	637
581496	459
581495	204
581494	186
581493	160
581492	1848
581491	12
581489	72
581488	56
581487	120
581486	208
581485	114
581483	80995
581482	228
581481	234
581480	64
581479	10
581478	218
581477	132
581476	2099
581475	352
581474	23
581473	55
581472	127
581471	74
581469	48
581467	217
581461	84
581459	1200
581458	1500
581457	2414
581456	168
581455	140
581454	91
581453	454
581452	284
581451	128
581450	64
581449	20
581448	48

581445	164
581443	456
581442	59
581439	1631
581438	268
581437	230
581436	278
581434	50
581433	733
581432	240
581431	14
581430	48
581429	111
581428	12
581427	70
581426	104
581425	307
581424	59
581423	52
581421	117
581420	426
581419	724
581418	154
581417	106
581416	75
581415	226
581414	179
581413	134
581412	651
581411	78
581410	1069
581407	123
581405	279
581404	320
581403	232
581402	174
581401	150
581400	188
581399	198
581398	85
581397	60
581396	90
581395	28
581394	4
581385	72
581383	176
581382	223
581381	146
581380	77
581379	89
581378	77
581377	151

581376	243
581375	1056
581361	102
581358	42
581357	152
581356	21
581352	90
581345	83
581338	140
581336	91
581335	140
581334	418
581333	21
581327	214
581325	90
581324	28
581310	88
581291	109
581285	174
581281	191
581279	18
581266	938
581256	1034
581253	25
581252	86
581251	52
581246	65
581241	314
581238	615
581237	174
581236	186
581233	76
581232	84
581231	4
581230	494
581227	12
581225	444
581224	89
581223	88
581222	16
581221	204
581220	582
581219	2016
581218	476
581217	1733
581216	408
581215	272
581214	224
581000	22
Grand Total	126320

The following pie-chart has been prepared using the above information –



The pie chart here shows that 581,483 quantities have been purchased for the transaction No – 581483. This transaction does not cover the largest share of the pie, signifying that from one transaction, the highest quantities ordered by the customers is 80,995 quantities. For transaction no – 581457, the customers purchased 2,414 units while for transaction no – 581476, 2099 quantities were ordered. For the transaction number 581219, customers have bought 2016 quantities of products. For transaction no 581492, 1848 quantities were ordered by customers. For transaction no 581217, 1733 quantities were ordered by customers. For transaction no 581439, 1631 quantities were ordered by customers. For transaction no 581458, 1500 quantities were ordered by customers. For transaction no 581459, 1200 quantities were ordered by customers. For transaction no 581410, 1069 quantities were ordered by customers. These are the top 10 transactions with most quantities purchase3d by customers.

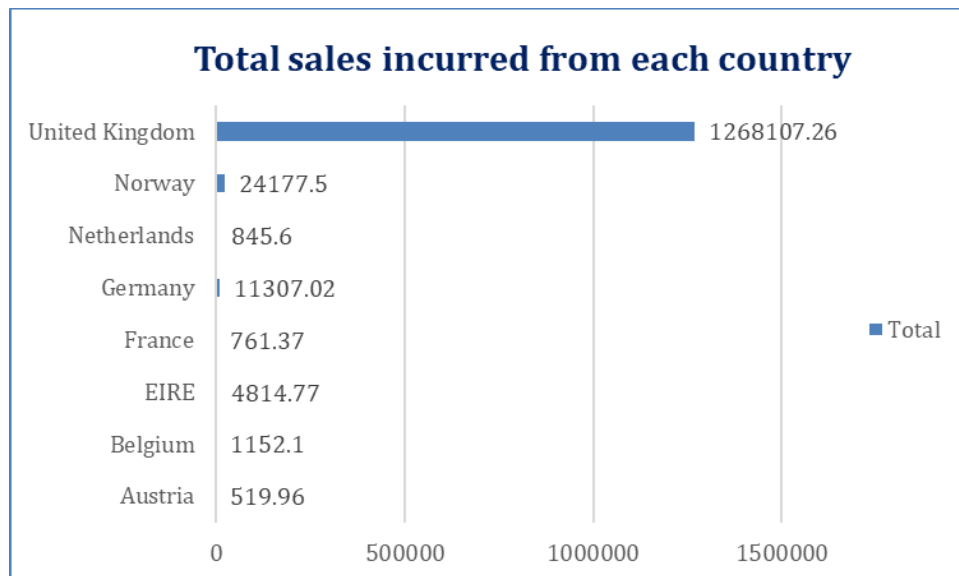
4. The most profitable customer segment

To evaluate the most profitable customer segment the following pivot table is to be considered which shows total sales revenue generated in different countries where the company has operated. Here, no costs for each product have been provided so, to assess the profitability of the company, sales revenue information for each transaction has been considered.

Country	Total
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Austria	519.96
Belgium	1152.1
EIRE	4814.77
France	761.37
Germany	11307.02
Netherlands	845.6
Norway	24177.5
United Kingdom	1268107.26
<u>Grand Total</u>	<u>1311685.58</u>

Now, with the use of this information, the following chart has been prepared –



The company has generated the most sales revenue by selling products to customers in the UK (United Kingdom). Hence, the customers of the UK can be classified as the most profitable customer segment. Norway is the 2nd most profitable customer segment for the e-commerce retailer. A total of 24117,50 GBP of sales revenue have been generated by selling products to the customers of Norway. Austria is the least profitable customer segment region for the retailer as only 519.96 GBP of sales revenue have been collected by the retailer by selling items to the customers of Austria. Germany has been quite profitable as the customers located in Germany has purchased a significant number of

items from which the company raised 11,307.02 GBP revenue. From the customers of Ireland, the company has also raised total revenue amounting 4,814.77 GBP. Also, from the customers of Belgium, 1,152.1 GBP revenue was raised by the company. France and Netherlands have not been that profitable for the retailer as the company raised 761.37 GBP and 845.60 GBP of revenue from the customers of those countries respectively.

5. Recommended strategies to the retailer to make more profit

Following recommendations can be useful for the company for raising the profitability of the business –

i. Market segmentation & targeting:

Based on the analysis, it has been found that the company is dependent on the UK customers to make profits. However, this limits the chances of making more profit as the e-commerce retail industry in the UK is highly competitive and there are other large retailers like Amazon, Asda, ASOS, etc. in the market. Hence, the company should focus on attracting customers from other countries as well. More discounts and offers should be provided to encourage them to purchase items. Diversifying the revenue stream will lead to an increase in the profitability of the organisation (Rodriguez, 2024).

ii. Invest in marketing and sales:

To increase profit, the company should focus on sales maximization instead of profit maximizing. To maximize sales volume, the company must invest in marketing. Aggressive branding and promotion will raise the awareness among the customers regarding the brand. Also, new customers will come to know about the organisation. These activities will lead to more sales. The e-commerce retailer should focus on digital marketing strategies more than traditional marketing. Through social media campaigns, google ads, and sponsorships, the company can promote its business (Marshall, 2022).

iii. Business expansion into new markets:

The analysis shows that the UK-based retailer sells its products to customers of other European countries. In this context, the company can think of expanding its business in new emerging markets of South-East Asia, South America, and Africa. South-East Asian countries have high demand for retail goods due to high population density. Also, the currency value in those countries is lower, so the company can expect to raise more profit

from sales. Also, the retailer will gain a competitive advantage and high monopoly power in the market.

iv. Supply chain optimization:

To increase profitability, the company can optimize its supply chain operations and lower the costs of manufacturing. To do so, the company can contact local vendors and suppliers who will provide materials at a lower cost as also the payment period can be delayed (Marshall, 2022). Also, the company can open some factories in the South-East Asian countries such as India, Sri Lanka, Bangladesh, Thailand, etc. where efficient labour can be availed at a cheap rate. The improvement of operational efficiency is also required. Moreover, technological advancement is key to managing additional costs and also optimizing the operations of the supply chain.

v. Pricing strategies:

Products that have higher demand should see an increase in unit prices. The products that have lower demand, the company can implement penetration pricing for those items. Setting a lower price for the products initially will attract customers. Once the customer base is built, the company can raise prices of those items. More focus should be given on optimizing the satisfaction of the customers (Rodriguez, 2024). Through upselling and cross-selling, the retailer can raise the average transaction value of the products. The pricing strategies should be framed efficiently so that more customers can be retained, and the revenue of the company does not fall.

Part 2

1. Number of male and female students in the survey

The following table shows the number of male and female students in the school –

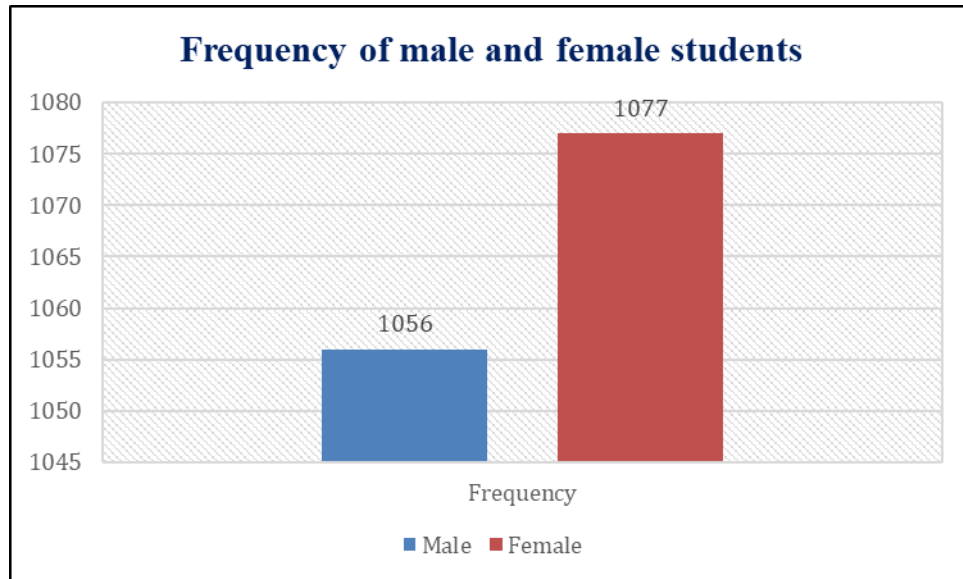
Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	1056	49.5	49.5	49.5
	Female	1077	50.5	50.5	100.0
	Total	2133	100.0	100.0	

The screenshot shows the IBM SPSS Statistics Viewer interface. The 'Frequencies' dialog box is open, showing the variable 'Gender' selected. The 'Statistics' section indicates that the 'N' is 2133, with 'Valid' cases at 2133 and 'Missing' cases at 0. Below the dialog box, the output table for 'Gender' is displayed, matching the table shown at the top of the image.

Gender					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	1056	49.5	49.5	49.5
	Female	1077	50.5	50.5	100.0
	Total	2133	100.0	100.0	

The COUNTIF function has been used in MS Excel to calculate the number of students of each gender. For Male students, the function used is =COUNTIF(H2:H2134,"1"). And,

for female students, the MS Excel function used is =COUNTIF(H2:H2134,"2"). The following chart has been prepared in this context –



The above column chart shows that out of 2,133 students 1077 students are female and 1056 students are male students. The column for female students is taller than the column for male students. In this column chart, the category of gender has been taken on X-axis while the number of students has been measured on Y-axis.

2. Frequency of students who qualify/ do not qualify for free lunch

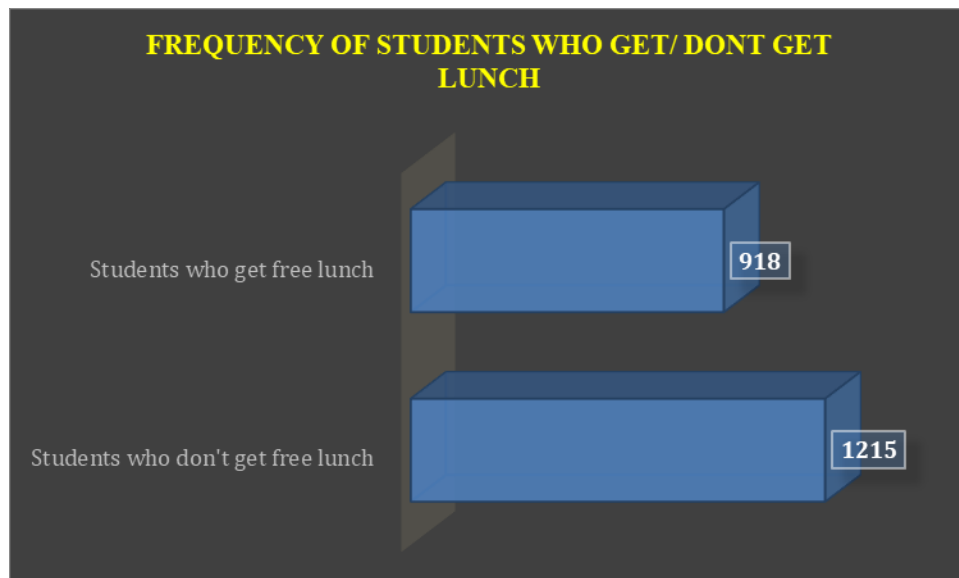
The following table can be considered to evaluate the number of students who qualify and who do not qualify for lunch –

Category of students getting or not getting free lunch	Frequency
Students who do not get free lunch	1215
Students who get free lunch	918

Again, the COUNTIF function has been used to derive these figures. To find out the number of students who do not get free lunch, the MS Excel function used is

=COUNTIF(I2:I2134,"0"). Also, to find out the number of students who get free lunch, the MS Excel function used is =COUNTIF(I2:I2134,"1").

The data of the above table has been visualized through the following chart –



The bar diagram shows that 1,215 students do not qualify for free lunch while 918 students qualify for free or reduced lunch. In this bar chart, the category of students is taken on the X axis and the number of students is taken on the Y-axis.

3. Descriptive statistics

The mean of students who qualifies and do not qualify for reduced or free lunch is 1,066.50. Also, the median number of students who qualify and do not qualify for reduced or free lunch is 1,066.50. To calculate the average, the MS Excel function used is =AVERAGE(Q3:Q4) and for the median calculation, the MS Excel function used is =MEDIAN(Q3:Q4).

Advantages and Disadvantages of SPSS

Advantages	Disadvantages
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SPSS is easy to use. Also fast, and reliable answers are offered by the SPSS.	If the user has to analyse a large dataset, SPSS will not be useful. SPSS may not evaluate fruitful outcomes for those industries.
The users of SPSS do not need to work with syntax, however, the syntax files can be saved and modified accordingly. Also, SPSS is more dynamic and consists of various useful tables and graphs to visualize the data properly (Medium, 2023).	If information is gathered using biased or faulty methods, then the user may not receive true outcomes from the analysis. The evaluation of the data is misleading if the sampling is not done correctly.
Data management is easy in SPSS. Not much effort is required to start using the SPSS.	The SPSS may not be useful when the exact thing is not measured by researchers that is required by them.
SPSS is prone to fewer errors. According to the requirement of the data distribution, the graph can be modified (Medium, 2023).	SPSS cannot be used to analyse qualitative data. Also, SPSS is harder for the user to program as compared to other tools like SAS and R (Rippey, 2019).
A variety of languages are offered by SPSS, therefore, it is easily accessible to most people.	

Advantages and disadvantages of MS Excel

Advantages	Disadvantages
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Data can be inserted in MS Excel easily. Also, the filtering of data is easy and a useful feature.	There are file size restrictions with MS Excel. Hence, data with a lot of observations cannot be professionally managed by MS Excel.
In MS Excel, data can be retrieved easily. Finding data by hand is time consuming, however, in MS Excel it can be located and retrieved easily (Javatpoint, 2024).	It is not easy to learn the functions of MS Excel. Hence, beginners need time to learn and use MS Excel efficiently (Natter, 2019).
The functions to perform various mathematical and statistical operations in MS Excel are easily understandable. Also, the use of these functions accelerates the calculation and analysis process.	There is a lack of quick autofill feature in MS Excel. It is important for the users to know the MS Excel functions and other features o autofill the cells in an appropriate manner.
MS Excel spreadsheets can be protected using passwords; therefore, limited chances are there for data theft or loss.	MS Excel is subjected to the commitment of random errors. It is important for the uses to know the appropriate category of information. Data related to fractions and percentages may lead to inappropriate results if accurate process is not followed (Natter, 2019).
Information related to various aspects can be saved in several worksheets under a single file. There is no requirement of having different files and	

registers to keep track of data of distinct categories (Javatpoint, 2024).	
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Conclusion

Two datasets have been analysed in this assignment using the steps of data analytics process. Here, 5 steps of data analytics process are – data collection, data cleaning, data analysis, data visualization, and interpretation of data. The analysis of sales data of the company provides viable insights into the strategies that can be undertaken to improve profitability. Various charts have been prepared to show the trends in sales and provide views on other variables. In part 2, the advantages and disadvantages of MS Excel have been portrayed. MS Excel is a more widely used tool for analytical work, while SPSS is more specific to statistical work. Both MS Excel and SPSS applications have been used to derive the results from which the surveyor can make informed decisions. The techniques of both data intelligence and business intelligence have been applied appropriately in this context.

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