Name:

Enrolment No:

UPES
UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM & ENERGY STUDIES

End Semester Examination (Online) – Dec, 2020

Course: Data Mining and Business Intelligence **Semester: V**

Program: BBA (Digital Marketing) **Time: 03 hrs.**

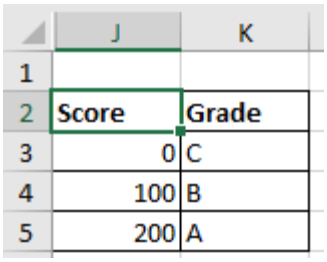
Course Code: DSIT 3001 **Max. Marks: 100**

IMPORTANT INSTRUCTIONS

1. *The student must write his/her name and enrolment no. in the space designated above.*
2. *Use of calculator allowed.*
3. *Differentiation in marks will be based on how adequately explanations are given and illustrated.*

Q.No	SECTION A **1. Each Question will carry 6 Marks** **2. Instruction: Complete the statement / Select the correct answer(s) – Any answer should not exceed 100 words**	Marks	COs
1.	**Given the table:**	5	CO1

	A	B	C	D	H
1	**Name:**	**Surname:**	**Score**	**Class 1**	**Counsellor**
2	Kyle	Camber	203	ANT2365	Lane
3	Macie	Cole	214	ANT2365	Lane
4	Parker	Drumford	102	ANT2365	Smith
5	Casey	Grant	235	ANT2365	Smith
6	Julian	Gray	156	ANT2365	Smith
7	Colin	Lamb	86	ANT2365	Smith
8	Percey	Lovell	126	ANT2365	Smith
9	Lenora	Marks	110	ANT2365	Smith
10	Janey	Archford	186	COM102	Lane

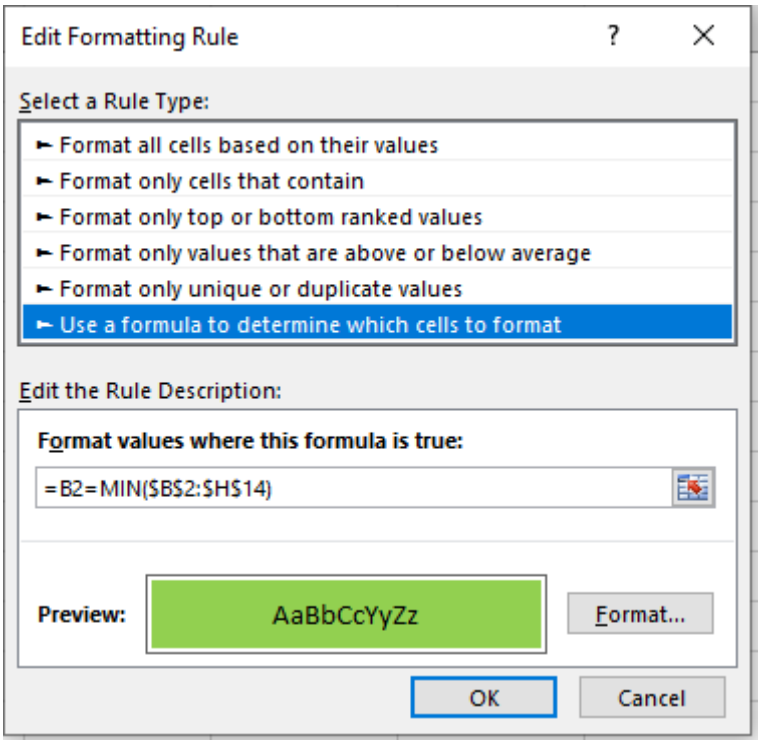
<table>
<tr><td></td><td>Further, If I have a corresponding table that says:
 
<table>
<tr><td></td><td>J</td><td>K</td></tr>
<tr><td>1</td><td></td><td></td></tr>
<tr><td>2</td><td>Score</td><td>Grade</td></tr>
<tr><td>3</td><td>0</td><td>C</td></tr>
<tr><td>4</td><td>100</td><td>B</td></tr>
<tr><td>5</td><td>200</td><td>A</td></tr>
</table>

What is the output for LOOKUP(“Lenora”,A1:H10,C2:C10), VLOOKUP(C4, $J$2:$K$5,2) and VLOOKUP(C5, $J$2:$K$5,2, FALSE) respectively?

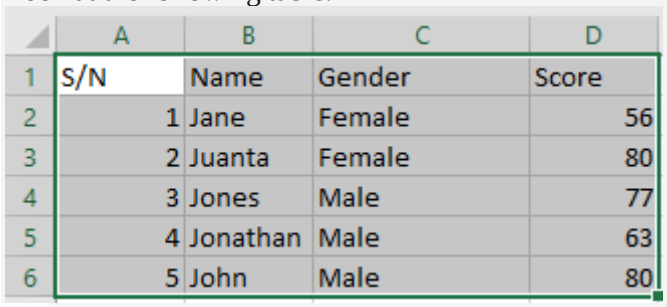
i) 186, A,B ii) ANT2365, B,A iii) 110, B, A iv) 186,B,#NA
v) 110, B, #NA vi) 186, A, B vii) 110, A, #NA</td><td></td><td></td></tr>
<tr><td>2.</td><td><u>Match the following:</u>
<table>
<tr><td>a. Velocity</td><td>i. Currency</td></tr>
<tr><td>b. $ sign in Excel reference</td><td>ii. Big data</td></tr>
<tr><td>c. Ctrl + L</td><td>iii. Pivot table</td></tr>
<tr><td>d. Report Filter</td><td>iv. moderates Excel behavior when the formula is moved or copied to other cells</td></tr>
<tr><td>e. Legend</td><td>v. Short Cut Key</td></tr>
<tr><td></td><td>vi. Graphs and Charts</td></tr>
<tr><td></td><td>vii. Lookup Table</td></tr>
</table></td><td>5</td><td>CO1</td></tr>
<tr><td>3.</td><td><u>Provide the output for the following: (3+2=5 Marks)</u>
Given the following table:</td><td>5</td><td>CO4</td></tr>
</table>

	A	B	C	D	E	F	G	H
1	**Product**	**Jan**	**Feb**	**Mar**	**Mar**	**Apr**	**April**	**May**
2	Product 1	104	116	59	109	81	138	136
3	Product 2	73	80	112	63	104	58	120
4	Product 3	81	50	91	147	116	70	72
5	Product 4	119	66	110	138	120	50	59
6	Product 5	93	150	84	134	117	130	117
7	Product 6	66	56	124	134	55	124	80
8	Product 7	94	145	63	146	146	125	103
9	Product 8	81	107	149	99	85	105	80
10	Product 9	65	85	146	82	91	52	135
11	Product 10	129	125	66	122	52	124	102
12	Product 11	120	60	113	60	78	147	108
13	Product 12	71	139	76	86	110	114	59
14	Product 13	111	57	130	89	57	64	71

Then for the given formula as shown below,

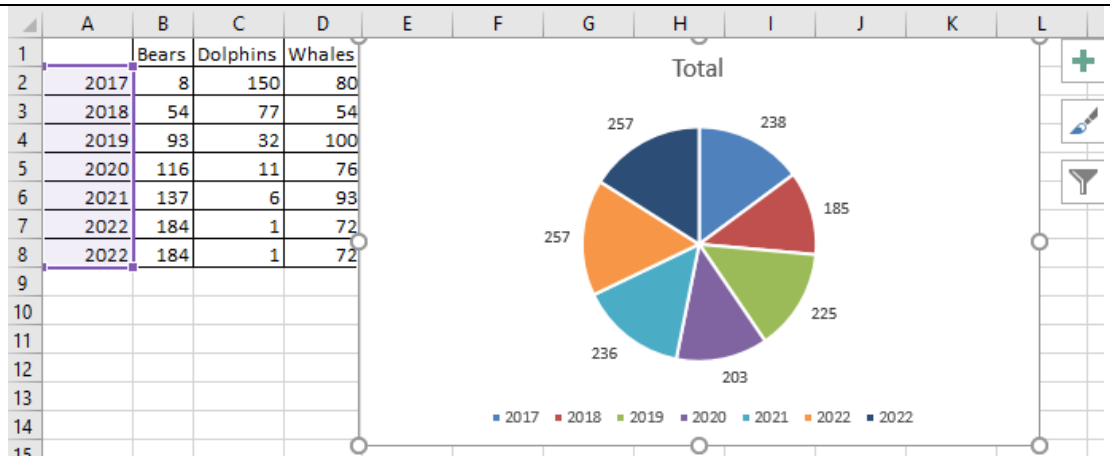
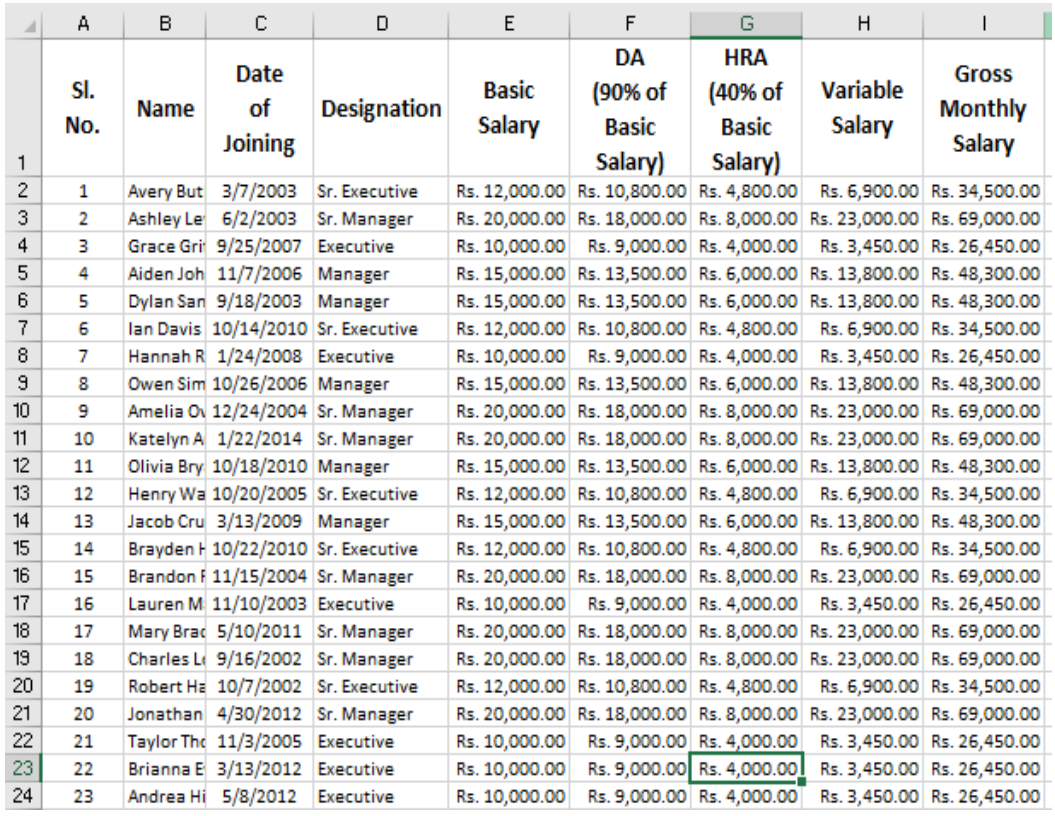


What is the output when applied to (i) $B$2:$H$14 and (ii) $B$2:$C$14

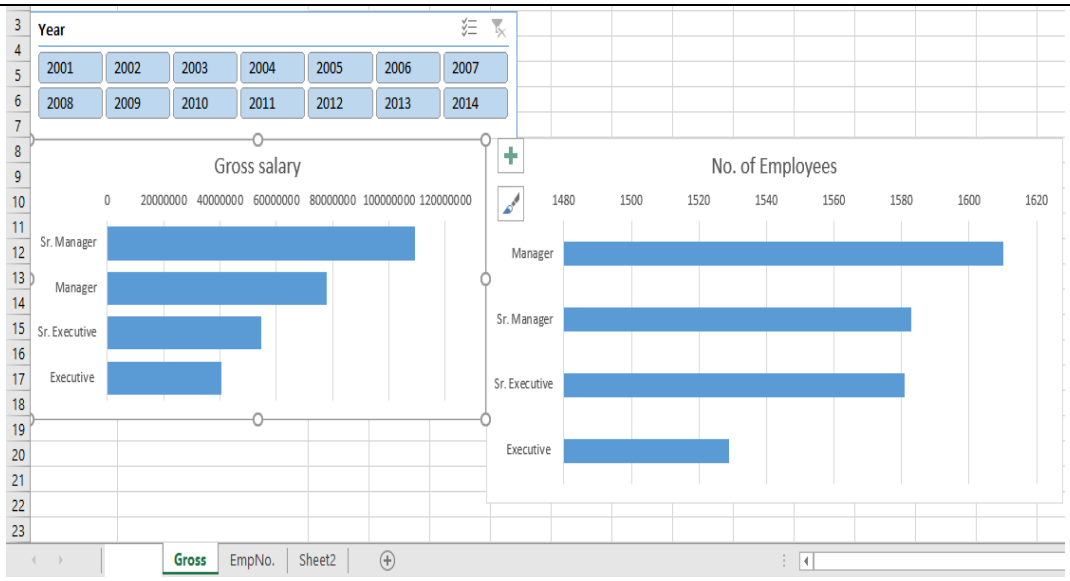
4.	Fill in the blank from the following options Customer Relationship Management (CRM) ensures customers, _____ and _____ at the centre of your organization. A customer life-cycle in CRM consists of _____, _____ and _____ phases **Options:** acquisition/ data / profitability / database / customers / acquire/ enhance / target / retain	5	CO1
5.	True/False (With explanation. If false they explain why and if true then explain what it means. No marks without explanation) **No other variation of graph other than pie-chart can compare percentages of two different series in a dataset.**	5	CO3
6.	True/False (With explanation. If false they explain why and if true then explain what it means. No marks without explanation) **Qualitative data may include both numerical and non-numerical data.**	5	CO3
	SECTION B **1. Each question will carry 10 marks** **2. Instruction: Any answer to the question should not exceed 350 words. Mention assumptions clearly if you are taking one** **3. No marks if steps are written in paragraphs or if the handwriting is illegible**		
7.	Look at the following table:  a) What are the steps if you want to create a dropdown for the column "Gender" such that it allows only Male and Female as options? **(5)** b) What are the steps if you want to the column "Score" allows decimal values between 0 and 100? **(5)**	10	CO3
8.	a) What are the three different elements in a customer life cycle? (4 Marks)	10	CO1

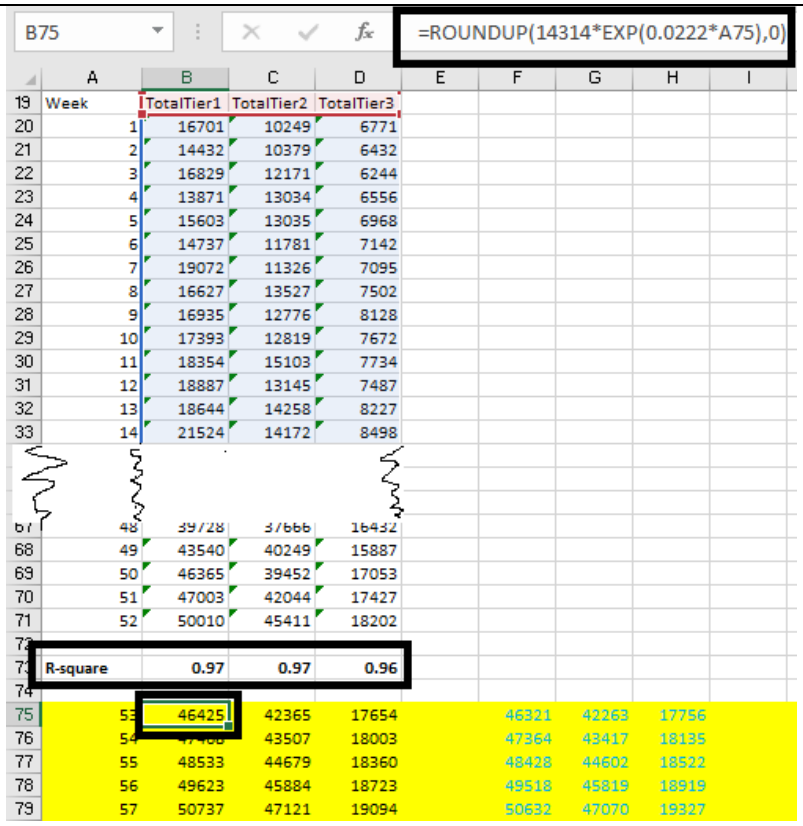
	A	B	C	D
1	S/N	Name	Gender	Score
2	1	Jane	Female	56
3	2	Juanta	Female	80
4	3	Jones	Male	77
5	4	Jonathan	Male	63
6	5	John	Male	80

	b) Explain how **Pivot table** and **Lookup Table** help you performing Customer Segmentation and ensure targeted marketing? (3+3=6 Marks)		
9.	Color Formatting Skills: 		A	B	C	D	E	F
---	---	---	---	---	---	---
1	Month	Region1	Region2	Region3	Region4	Region5
2	40330	2372		2923	1517	#DIV/0!
3	41699	1630	2720	2938	2856	#DIV/0!
4	41334	2235	1584	3458	1279	
5	41579	2830	4630	1425	4011	#NAME?
6	40695	2014	2329	4806	2254	2333
7	40787	1203	2618	2752	1690	1852
8	40360	2173	4459	2526	1558	1706
9	41275	3423	4594	1162	1461	3495
10	40087	4046	4930	4208	4348	1252
11	41030	2205	2613	4743	2816	2403
12	41395	1979	1803	2673		2907
13	40148	2349	2089	4426		3898 | Given the table mention the steps in a point-wise format to perform the following tasks: (3+4+3) a) Highlight the cells that are greater than >=3500 b) Highlight the blank cells and error cells in blue c) Highlight every alternate row in yellow	10	CO2
10.	a) Explain when you will choose a (i) Bar Graph, (ii) Line graph and (iii) Pie-chart for data visualization. (2+2+2=6 marks) b) Given the table, I want to get a pie-chart comparing the total number of wildlife present between 2017 to 2022. Provide the steps how I can get the output.	10	CO4

			
11.	Pivot Table: Given the table below:  Provide the steps in details to get the following output:	10	CO2

Sl. No.	Name	Date of Joining	Designation	Basic Salary	DA (90% of Basic Salary)	HRA (40% of Basic Salary)	Variable Salary	Gross Monthly Salary
1	Avery But	3/7/2003	Sr. Executive	Rs. 12,000.00	Rs. 10,800.00	Rs. 4,800.00	Rs. 6,900.00	Rs. 34,500.00
2	Ashley Le	6/2/2003	Sr. Manager	Rs. 20,000.00	Rs. 18,000.00	Rs. 8,000.00	Rs. 23,000.00	Rs. 69,000.00
3	Grace Gri	9/25/2007	Executive	Rs. 10,000.00	Rs. 9,000.00	Rs. 4,000.00	Rs. 3,450.00	Rs. 26,450.00
4	Aiden Joh	11/7/2006	Manager	Rs. 15,000.00	Rs. 13,500.00	Rs. 6,000.00	Rs. 13,800.00	Rs. 48,300.00
5	Dylan San	9/18/2003	Manager	Rs. 15,000.00	Rs. 13,500.00	Rs. 6,000.00	Rs. 13,800.00	Rs. 48,300.00
6	Ian Davis	10/14/2010	Sr. Executive	Rs. 12,000.00	Rs. 10,800.00	Rs. 4,800.00	Rs. 6,900.00	Rs. 34,500.00
7	Hannah R	1/24/2008	Executive	Rs. 10,000.00	Rs. 9,000.00	Rs. 4,000.00	Rs. 3,450.00	Rs. 26,450.00
8	Owen Sim	10/26/2006	Manager	Rs. 15,000.00	Rs. 13,500.00	Rs. 6,000.00	Rs. 13,800.00	Rs. 48,300.00
9	Amelia Ov	12/24/2004	Sr. Manager	Rs. 20,000.00	Rs. 18,000.00	Rs. 8,000.00	Rs. 23,000.00	Rs. 69,000.00
10	Katelyn A	1/22/2014	Sr. Manager	Rs. 20,000.00	Rs. 18,000.00	Rs. 8,000.00	Rs. 23,000.00	Rs. 69,000.00
11	Olivia Bry	10/18/2010	Manager	Rs. 15,000.00	Rs. 13,500.00	Rs. 6,000.00	Rs. 13,800.00	Rs. 48,300.00
12	Henry Wa	10/20/2005	Sr. Executive	Rs. 12,000.00	Rs. 10,800.00	Rs. 4,800.00	Rs. 6,900.00	Rs. 34,500.00
13	Jacob Cru	3/13/2009	Manager	Rs. 15,000.00	Rs. 13,500.00	Rs. 6,000.00	Rs. 13,800.00	Rs. 48,300.00
14	Brayden H	10/22/2010	Sr. Executive	Rs. 12,000.00	Rs. 10,800.00	Rs. 4,800.00	Rs. 6,900.00	Rs. 34,500.00
15	Brandon F	11/15/2004	Sr. Manager	Rs. 20,000.00	Rs. 18,000.00	Rs. 8,000.00	Rs. 23,000.00	Rs. 69,000.00
16	Lauren M	11/10/2003	Executive	Rs. 10,000.00	Rs. 9,000.00	Rs. 4,000.00	Rs. 3,450.00	Rs. 26,450.00
17	Mary Brad	5/10/2011	Sr. Manager	Rs. 20,000.00	Rs. 18,000.00	Rs. 8,000.00	Rs. 23,000.00	Rs. 69,000.00
18	Charles L	9/16/2002	Sr. Manager	Rs. 20,000.00	Rs. 18,000.00	Rs. 8,000.00	Rs. 23,000.00	Rs. 69,000.00
19	Robert Ha	10/7/2002	Sr. Executive	Rs. 12,000.00	Rs. 10,800.00	Rs. 4,800.00	Rs. 6,900.00	Rs. 34,500.00
20	Jonathan	4/30/2012	Sr. Manager	Rs. 20,000.00	Rs. 18,000.00	Rs. 8,000.00	Rs. 23,000.00	Rs. 69,000.00
21	Taylor Tho	11/3/2005	Executive	Rs. 10,000.00	Rs. 9,000.00	Rs. 4,000.00	Rs. 3,450.00	Rs. 26,450.00
22	Brianna E	3/13/2012	Executive	Rs. 10,000.00	Rs. 9,000.00	Rs. 4,000.00	Rs. 3,450.00	Rs. 26,450.00
23	Andrea Hi	5/8/2012	Executive	Rs. 10,000.00	Rs. 9,000.00	Rs. 4,000.00	Rs. 3,450.00	Rs. 26,450.00

			
	SECTION C **1. Each question will carry 20 marks** **2. Instruction: Write long answer (800 words maximum)**		
12.	Swiggy, an on-demand delivery start-up, has been operating for almost a year in Bengaluru, India. There is variation in demand and hence there the whole city is segregated into Tier-1, Tier-2, and Tier-3 cities, such that Tier-1 localities are the ones with most orders and Tier-3 with least. Although there is growth, Swiggy is incurring a loss or cash burn of around INR 7 per delivery. However, the company expects that the exponential growth of the business will persist. Swiggy's current cash reserve is also drying up and its chief executive officer has been unsuccessful in attracting new VC funding to finance the cash burn estimated for the next four quarters. **Swiggy's challenge is to figure out how to pursue its growth without the injection of any fresh funds.** **Questions at hand** A. One way is to ensure exponential growth in demand. We have obtained the total deliveries for 52 weeks for all the 3 tiers in the cities. Our task is to check the possibility of exponential growth in the number of deliveries from 53rd week onwards. For that, you need to get the exponential equation and R-square value by checking the possible trend, to comment on the feasibility, as shown in the given figure. As you can see the forecast uses an equation $y=14314e^{0.0222x}$ for tier 1 locality forecast. **Write down the steps how to perform that action?(10 Marks)**	20	CO3



B. Apart from that, Swiggy can also look at operational parameters and adjust them at the beginning of any of the four quarters and it will flow to subsequent quarters (such as, rider fixed weekly salary, commission rate charged by Swiggy, etc.). Presently as the manager have the following details.

	A	B	C	D	E	F	G	H
1	**ChangeFactorQ1**	**1**	**1**	**1**	**1**	**1**		ForecastOrders
2	Tier	Rider Fixed Weekly Salary	Bonus per Order	Avg Deliveries per Week per Rider	Avg Order Value	Avg Commission	Revenue per Order	Q1
3	1	₹ 2,000.00	₹ 35.00	90	₹ 340.00		₹ 51.00	691,903
4	2	₹ 1,700.00	₹ 30.00	82	₹ 292.00	15.00%	₹ 43.80	649,247
5	3	₹ 1,500.00	₹ 25.00	75	₹ 260.00		₹ 39.00	258,837
6								
7		Q1Revenue	₹ 73,818,715	Q1Expenses	₹ 84,177,301	Q1CashBurn	-₹ 10,358,586	
8								
9	**ChangeFactorQ2**	**1**	**1**	**1**	**1**	**1**		ForecastOrders
10	Tier	Rider Fixed Weekly Salary	1	Avg Deliveries per Week per Rider	Avg Order Value	Avg Commission	Revenue per Order	Q2
11	1	₹ 2,000.00	₹ 35.00	90	₹ 340.00		₹ 51.00	923,382
12	2	₹ 1,700.00	₹ 30.00	82	₹ 292.00	15.00%	₹ 43.80	917,457
13	3	₹ 1,500.00	₹ 25.00	75	₹ 260.00		₹ 39.00	333,951
14								
15		Q2Revenue	₹ 100,301,188	Q2Expenses	₹ 114,409,925	Q2CashBurn	-₹ 14,108,737	
16								
17	**ChangeFactorQ3**	**1**	**1**	**1**	**1**	**1**		ForecastOrders
18	Tier	Rider Fixed Weekly Salary	Bonus per Order	Avg Deliveries per Week per Rider	Avg Order Value	Avg Commission	Revenue per Order	Q3
19	1	₹ 2,000.00	₹ 35.00	90	₹ 340.00		₹ 51.00	1,232,303
20	2	₹ 1,700.00	₹ 30.00	82	₹ 292.00	15.00%	₹ 43.80	1,296,476
21	3	₹ 1,500.00	₹ 25.00	75	₹ 260.00		₹ 39.00	430,862
22								
23		Q3Revenue	₹ 136,436,720	Q3Expenses	₹ 155,676,347	Q3CashBurn	-₹ 19,239,627	
25	**ChangeFactorQ4**	**1**	**1**	**1**	**1**	**1**		ForecastOrders
26	**Tier**	Rider Fixed Weekly Salary	Bonus per Order	Avg Deliveries per Week per Rider	Avg Order Value	Avg Commission	Revenue per Order	Q4
27	**1**	₹ 2,000.00	₹ 35.00	90	₹ 340.00		₹ 51.00	1,644,580
28	**2**	₹ 1,700.00	₹ 30.00	82	₹ 292.00	15.00%	₹ 43.80	1,832,074
29	**3**	₹ 1,500.00	₹ 25.00	75	₹ 260.00		₹ 39.00	555,894
30								
31		Q4Revenue	₹ 185,798,287	Q4Expenses	₹ 212,065,994	Q4CashBurn	-₹ 26,267,707	
32								
33		StartingCashReserve INR	₹ 28,000,000					
34		TotalCashBurn INR	-₹ 69,974,658					
35		EndCashReserve INR	-₹ 41,974,658					

As a manager you need to ensure that Swiggy is able to break-even, that is, its cash reserve remains unchanged. For that, you have decided to increase the **Average Commission charged** in the above table **in the first quarter**, which continues for the next three quarters too. **Identify the excel tool that you need to use and why? Mention the steps to perform the operation. (2+8)**

Hint and Note*: Cell F1 has value "1" when 15% is the initial average commission. Changing the value of Cell F1 to "1.1" will represent a 10% increase in average commission. Then the average commission will change to 16.50% and it will look like this.*

	A	B	C	D	E	F	G	H
1	**ChangeFactorQ1**	**1**	**1**	**1**	**1**	**1.1**		ForecastOrders
2	Tier	Rider Fixed Weekly Salary	Bonus per Order	Avg Deliveries per Week per Rider	Avg Order Value	Avg Commission	Revenue per Order	Q1
3	1	₹ 2,000.00	₹ 35.00	90	₹ 340.00		₹ 56.10	691,903
4	2	₹ 1,700.00	₹ 30.00	82	₹ 292.00	16.50%	₹ 48.18	649,247
5	3	₹ 1,500.00	₹ 25.00	75	₹ 260.00		₹ 42.90	258,837
6								
7		Q1Revenue	₹ 81,200,586	Q1Expenses	₹ 84,177,301	Q1CashBurn	-₹ 2,976,715	
8								
9	**ChangeFactorQ2**	**1**	**1**	**1**	**1**	**1**		ForecastOrders
10	Tier	Rider Fixed Weekly Salary	1	Avg Deliveries per Week per Rider	Avg Order Value	Avg Commission	Revenue per Order	Q2
11	1	₹ 2,000.00	₹ 35.00	90	₹ 340.00		₹ 56.10	923,382
12	2	₹ 1,700.00	₹ 30.00	82	₹ 292.00	16.50%	₹ 48.18	917,457
13	3	₹ 1,500.00	₹ 25.00	75	₹ 260.00		₹ 42.90	333,951
14								
15		Q2Revenue	₹ 110,331,306	Q2Expenses	₹ 114,409,925	Q2CashBurn	-₹ 4,078,619	
16								
17	**ChangeFactorQ3**	**1**	**1**	**1**	**1**	**1**		ForecastOrders
18	Tier	Rider Fixed Weekly Salary	Bonus per Order	Avg Deliveries per Week per Rider	Avg Order Value	Avg Commission	Revenue per Order	Q3
19	1	₹ 2,000.00	₹ 35.00	90	₹ 340.00		₹ 56.10	1,232,303
20	2	₹ 1,700.00	₹ 30.00	82	₹ 292.00	16.50%	₹ 48.18	1,296,476
21	3	₹ 1,500.00	₹ 25.00	75	₹ 260.00		₹ 42.90	430,862
22								
23		Q3Revenue	₹ 150,080,392	Q3Expenses	₹ 155,676,347	Q3CashBurn	-₹ 5,595,955	
24								
25	**ChangeFactorQ4**	**1**	**1**	**1**	**1**	**1**		ForecastOrders
26	**Tier**	Rider Fixed Weekly Salary	Bonus per Order	Avg Deliveries per Week per Rider	Avg Order Value	Avg Commission	Revenue per Order	Q4
27	**1**	₹ 2,000.00	₹ 35.00	90	₹ 340.00		₹ 56.10	1,644,580
28	**2**	₹ 1,700.00	₹ 30.00	82	₹ 292.00	16.50%	₹ 48.18	1,832,074
29	**3**	₹ 1,500.00	₹ 25.00	75	₹ 260.00		₹ 42.90	555,894
30								
31		Q4Revenue	₹ 204,378,116	Q4Expenses	₹ 212,065,994	Q4CashBurn	-₹ 7,687,878	
32								
33		StartingCashReserve INR	₹ 28,000,000					
34		TotalCashBurn INR	-₹ 20,339,167					
35		EndCashReserve INR	₹ 7,660,833					