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PES UNIVERSITY	**PES University, Bengaluru** (Established under Karnataka Act No. 16 of 2013)	**UE20CS903**

MARCH 2021: END SEMESTER ASSESSMENT (ESA)
M TECH DATA SCIENCE AND MACHINE LEARNING_ SEMESTER I

UE20CS903 – DataBases & SQL

Time: 3 Hrs	Answer All Questions	Max Marks: 80

INSTRUCTIONS

- All questions are compulsory.
- Section B and C are coding questions which have to be answered in the system and uploaded in Olympus Login.
- Section A should be handwritten in the answer script provided and signed at the end of the same.

SECTION A – 20 MARKS

1	a	State the difference between a Primary key and a Candidate key.	2
1	b	Explain difference between WHERE Clause and GROUP BY Clause?	2
1	c	What is the result of the following command? DROP VIEW view_name Is it possible to update the views? If yes, How, If not Why?	2
1	d	Explain EXISTS operator with an example.	2
1	e	What is the difference between RANK() and DENSE_RANK()? Justify the answer with sample code.	2
2	a	List the conditions when joins should be used instead of nested sub queries.	2
2	b	State and explain in brief types of Locks in database.	2
2	c	What are the levels at which check constraints can be created? Justify your answer, on what all data types the constraints can be applied.	2
2	d	If we drop a table, does it also drop related objects like constraints, indexes, columns, defaults, Views and Stored Procedures?	2
2	e	Explain multi-row operators for subqueries with an example.	2

SECTION B – 30 MARKS

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3	a	**Refer to the below resources, Client and Project tables present in Project Database to answer the below questions.** Using the below data, find out the reporting manager, client and project name for every employee in the organization **-- Sample solution** **-- Employee_name Manager_Name Project_name Client_name** **Stonq Maria Credit Score Reg Inc** **John Maria Defaulter Detection Reg Inc** **Jane Maria Gaming App Prg Inc** **Ben Maria Stock Trading TS Inc** **(Use: - resources, clients and Projects tables)**	5
3	b	**Refer to the below resources, Client and Project tables present in Project Database to answer the below questions.**	5

Employee_id	Employee_name	Salary	Manager_id	Job_Role
1	Liya	9000	null	Founder
2	Jane	5157	6	Associate
3	Tom	8450	1	CEO
4	John	5100	6	Associate
5	Lizzy	6300	9	Senior Manager
6	Maria	5750	5	Manager
7	Kate	8000	3	VP
8	Ben	5145	6	Associate
9	Ford	7357	7	Director
10	Stonq	5000	6	Associate

Client_id	Client_name	Client_Country
101	Reg Inc	USA
102	NLP Inc	USA
103	DL Inc	USA
104	TS Inc	USA
105	Prg Inc	UK

Project_id	Project_name	Employee_id	Client_id
201	Credit Score	10	101
202	Defaulter Detection	4	101
203	Gaming App	2	105
304	Stock Trading	8	104

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The Director of a business vertical wants to know the current list of inactive clients. How will you get the same? Display Client_id, Client_Name, Client_Country **(Use: -, clients and Projects tables)**

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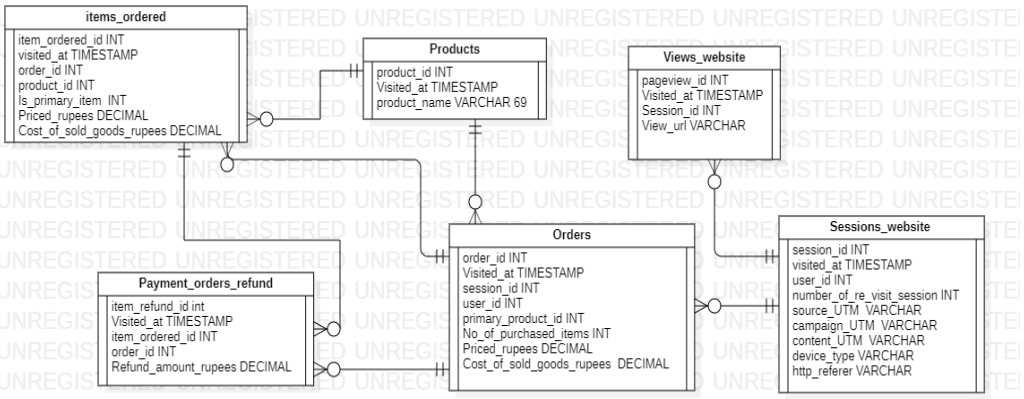
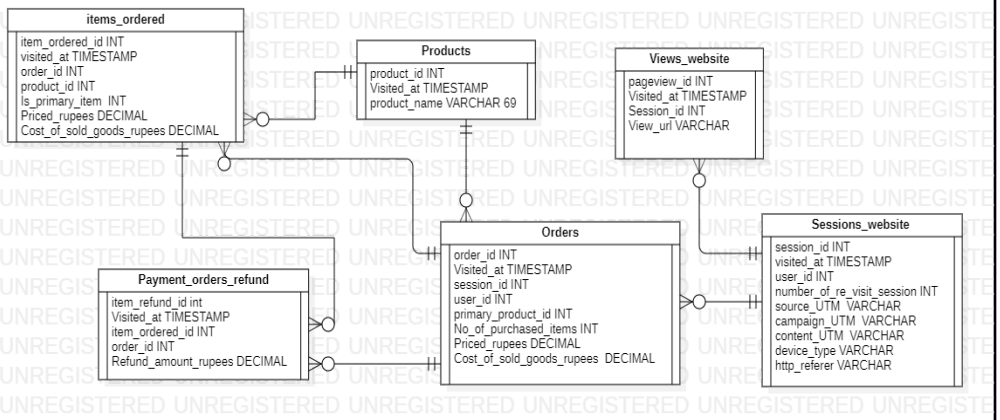
3	c	 In a website an analyst has observed/inferred that "gsearch" and " nonbrand" are the major traffic sources, but the analysts needs to understand if those sessions are driving sales.Calculate the conversion rate (CVR) from session views to order? Based on what the company is paying for clicks, the website will need a CVR of at least 4% to make the numbers work. [Calculate for the data on or before 24th Aug 2020]. -- CVR FORMULA ==Unique number of orders/Unique numbers of views **(Use: - sessions_website ,orders tables)** -- Sample Output: -- Sessions Orders Conversion 53360 2217 4.1548	5
3	d	 Write a query to pull monthly session volume for gsearch and bsearch non brand, broken down by device,starting from -- August 01st ,2012 till December 22nd ,2012 ? -- show bsearch as a percent of gsearch for each device -- Sample output -- month_start_date g_dtop_sessions b_dtop_sessions b_pct_of_g_dtop g_mob_sessions b_mob_sessions b_pct_of_g_mob -- 2012-08-01 3519 571 0.1623 1164 67 0.0576	5

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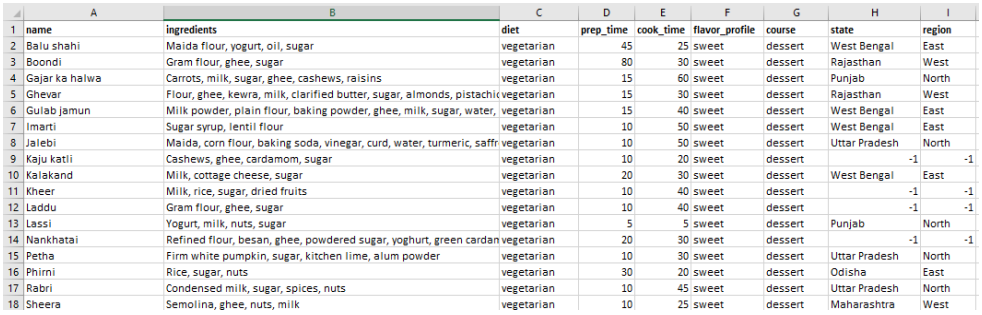
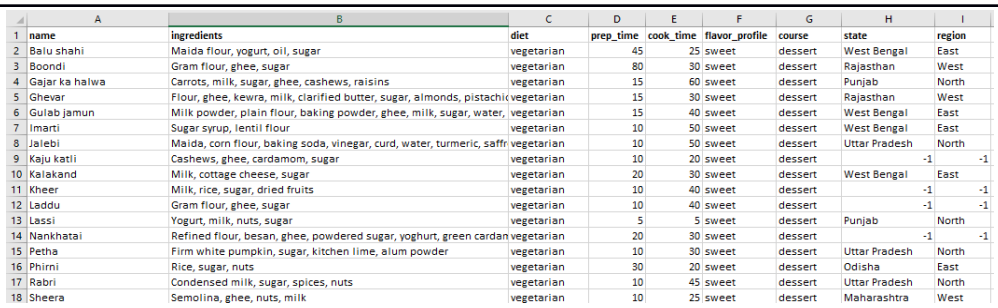
		-- 2012-09-01 3169 1221 0.3853 1053 141 0.1339 -- 2012-10-01 3929 1534 0.3904 1257 140 0.1114 **(Use: - sessions_website tables)**	
3	e(i)	 Write a Query to display a report with the names of the dishes, ingredients, and ranking based on 'cook_time' together. Rank the dishes which consume the maximum time to get prepared and cooked as the first rank and so on. **(Use Table: indian_food)**	5
3	e(ii)	 An App user would like to know the names of the dishes along with the ingredients used which consume minimum time for cooking under each course type. Can you get the details required? **(Use Table: indian_food)**	5
		SECTION C – 30 MARKS	
4	a (i)	**Refer the Clothing database ER diagram to answer the below questions.**	5

	A	B	C	D	E	F	G	H	I
1	name	ingredients	diet	prep_time	cook_time	flavor_profile	course	state	region
2	Balu shahi	Maida flour, yogurt, oil, sugar	vegetarian	45	25	sweet	dessert	West Bengal	East
3	Boondi	Gram flour, ghee, sugar	vegetarian	80	30	sweet	dessert	Rajasthan	West
4	Gajar ka halwa	Carrots, milk, sugar, ghee, cashews, raisins	vegetarian	15	60	sweet	dessert	Punjab	North
5	Ghevar	Flour, ghee, kewra, milk, clarified butter, sugar, almonds, pistachi	vegetarian	15	30	sweet	dessert	Rajasthan	West
6	Gulab jamun	Milk powder, plain flour, baking powder, ghee, milk, sugar, water,	vegetarian	15	40	sweet	dessert	West Bengal	East
7	Imarti	Sugar syrup, lentil flour	vegetarian	10	50	sweet	dessert	West Bengal	East
8	Jalebi	Maida, corn flour, baking soda, vinegar, curd, water, turmeric, saffr	vegetarian	10	50	sweet	dessert	Uttar Pradesh	North
9	Kaju katli	Cashews, ghee, cardamom, sugar	vegetarian	10	20	sweet	dessert	-1	-1
10	Kalakand	Milk, cottage cheese, sugar	vegetarian	20	30	sweet	dessert	West Bengal	East
11	Kheer	Milk, rice, sugar, dried fruits	vegetarian	10	40	sweet	dessert	-1	-1
12	Laddu	Gram flour, ghee, sugar	vegetarian	10	40	sweet	dessert	-1	-1
13	Lassi	Yogurt, milk, nuts, sugar	vegetarian	5	5	sweet	dessert	Punjab	North
14	Nankhatai	Refined flour, besan, ghee, powdered sugar, yoghurt, green cardan	vegetarian	20	30	sweet	dessert	-1	-1
15	Petha	Firm white pumpkin, sugar, kitchen lime, alum powder	vegetarian	10	30	sweet	dessert	Uttar Pradesh	North
16	Phirni	Rice, sugar, nuts	vegetarian	30	20	sweet	dessert	Odisha	East
17	Rabri	Condensed milk, sugar, spices, nuts	vegetarian	10	45	sweet	dessert	Uttar Pradesh	North
18	Sheera	Semolina, ghee, nuts, milk	vegetarian	10	25	sweet	dessert	Maharashtra	West

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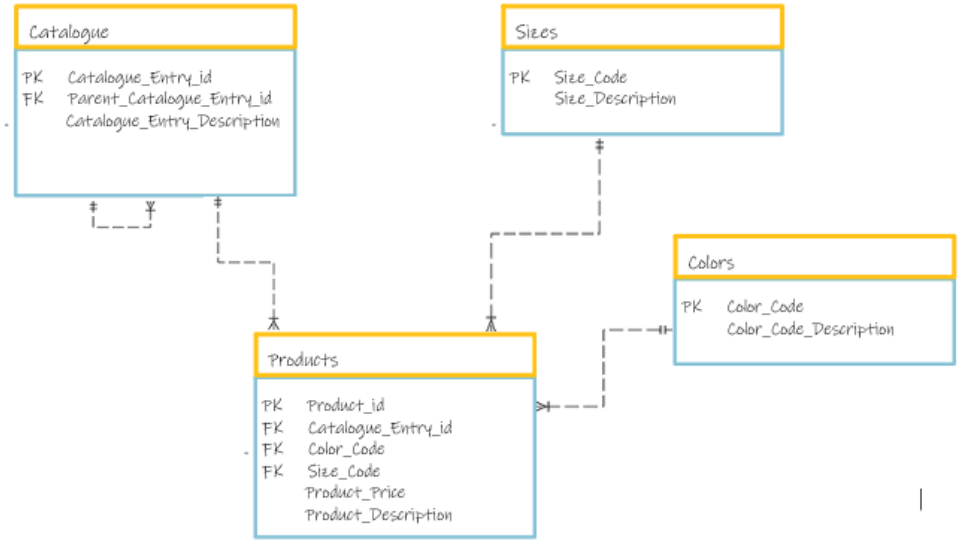

On account of monsoon sale, the shop is giving a flat 5% discount for all the accessories. Get the old price and new price of the accessories available. **(Use tables: - catalogue, products)**

Sample Output:

Catalogue_Entry_Description	**Old_Price**	**new_price**
Men Belt	**479**	**455.05**

4	a(ii)	**Refer the Clothing database ER diagram to answer the below questions.**	4

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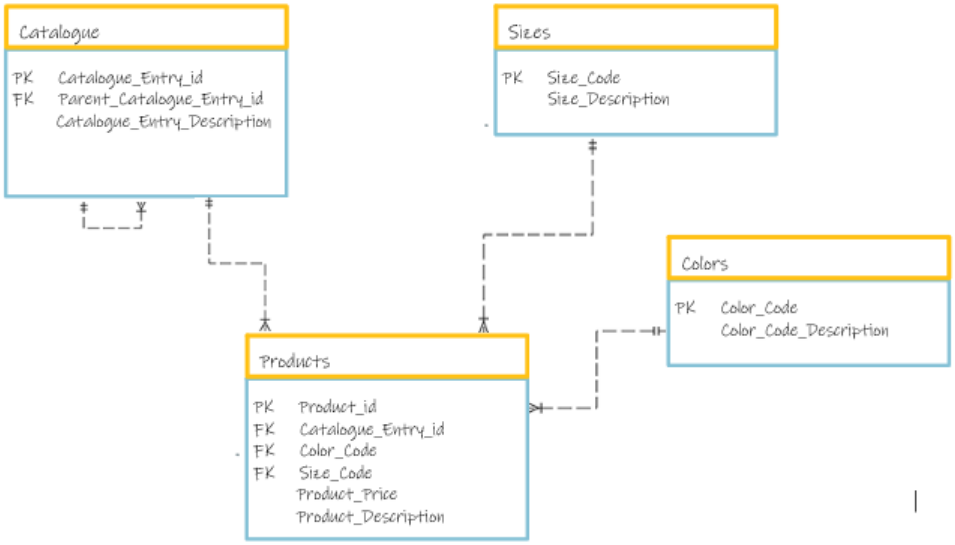
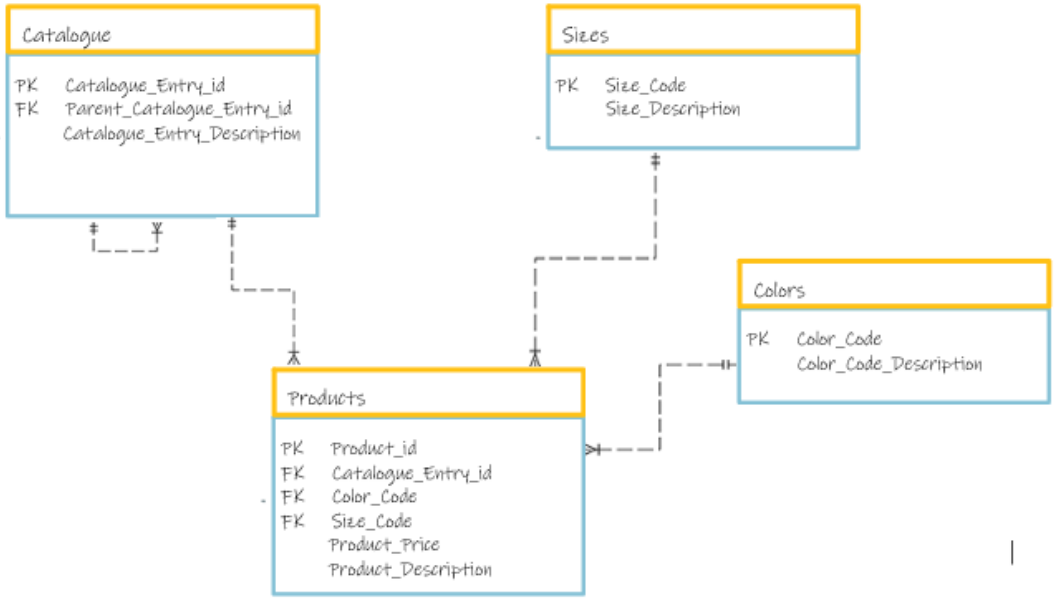


Get the product details of the catalogue items whose average price is greater than 1000. Display Catalouge Entry id, average product price.**Use tables: - products)**

4	a(iii)	**Refer the Clothing database ER diagram to answer the below questions.**	3



Find the number of products available in each 'catalogue_Entry_id' **(Use tables: - products)**

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4	a(iv)	In the process of mapping the products, the shop needs the Description of each item in the catalogue together with the Description of the parent item in the catalogue and the Description of the parents' parent item in the catalogue **(Use tables: - catalogue)** **Sample output :** **Prod_Desc** — **Sub_Prod_Desc** — **Main_Prod_Desc** Men Belt — Men Accessories — Accessories Men Bags — Men Accessories — Accessories Men EthnicWear — Men Clothing — Clothing Men Sportswear — Men Clothing — Clothing Men Wallet — Men Accessories — Accessories	6
4	a(v)	The Clothing owner wants the complete details of the available Adidas shirts. **(Use tables: - catalogue, sizes, colors, products)**	5
4	b	Help the DataEntry Specialist undo the changes in Clients Table using Transaction Control Language as he accidently updated the table as follows: ■ Following is the sequence of transactions given ■ SET autocommit = 0; ■ Create a savepoint named 'a' ■ Update the table "clients" with client_country='India'; ■ Help the Data Entry specialist undo the changes and restore back to previous state.	7