

## DAV Centenary Public School, Haldwani

Class: 12

Sub: Computer Science

Session: 2020-21

### List of Practical Questions

Last of Date of Submission of Practical File: 20-01-2021

Note: Make one side rule practical file as you are using for Physics and Chemistry Practical file. You have to make handwritten file. Write practical on page having lines and write input/output on blank page with proper formatting.

### Python Programming Questions

1. Write a program to calculate in how many days a work will be completed by three persons A, B and C together. A, B, C take x days, y days and z days respectively to do the job alone. The formula to calculate the number of days if they work together is  $xyz/(xy + yz + xz)$  days where x, y, and z are given as input to the program.
2. Write a program to find the grade of a student when grades are allocated as given in the table below.

Percentage of Marks	Grade
Above 90%	A
80% to 90%	B
70% to 80%	C
60% to 70%	D
Below 60%	E

Percentage of the marks obtained by the student is input to the program.

3. Write a program to generate the sequence: -5, 10, -15, 20, -25..... upto n, where n is an integer input by the user.
4. Write a program to print the following patterns:

i)	* * * * * * * * * * * * *	ii)	1 2 1 2 3 2 1 2 3 4 3 2 1 2 3 4 5 4 3 2 1 2 3 4 5
iii)	1 2 3 4 5 1 2 3 4 1 2 3 1 2 1	iv)	* * * * * * * *

5. Write a program using a user defined function myMean() to calculate the mean of floating values stored in a list.
6. Write a program that accepts numerator and denominator of a fractional number and calls a user defined function mixedFraction() when the fraction

formed is not a proper fraction. The default value of denominator is 1. The function displays a mixed fraction only if the fraction formed by the parameters does not evaluate to a whole number.

7. Write a program that contains user defined functions to calculate area, perimeter or surface area whichever is applicable for various shapes like square, rectangle, triangle, circle and cylinder. The user defined functions should accept the values for calculation as parameters and the calculated value should be returned. Import the module and use the appropriate functions.
8. Write a program that creates a GK quiz consisting of any five questions of your choice. The questions should be displayed randomly. Create a user defined function score() to calculate the score of the quiz and another user defined function remark (scorevalue) that accepts the final score to display remarks as follows:

Marks	Remarks
5	Outstanding
4	Excellent
3	Good
2	Read more to score more
1	Needs to take interest
0	General knowledge will always help you. Take it seriously.

9. Write a program to input line(s) of text from the user until enter is pressed. Count the total number of characters in the text (including white spaces), total number of alphabets, total number of digits, total number of special symbols and total number of words in the given text. (Assume that each word is separated by one space).
10. Write a program to read a list of elements. Input an element from the user that has to be inserted in the list. Also input the position at which it is to be inserted. Write a user defined function to insert the element at the desired position in the list.
  - a) Write a program to input your friends' names and their Phone Numbers and store them in the dictionary as the key-value pair. Perform the following operations on the dictionary:
  - b) Display the name and phone number of all your friends
  - c) Add a new key-value pair in this dictionary and display the modified dictionary
  - d) Delete a particular friend from the dictionary
  - e) Modify the phone number of an existing friend
  - f) Check if a friend is present in the dictionary or not
  - g) Display the dictionary in sorted order of names
11. Write functions in Python for PushS(List) and for PopS(List) for performing Push and Pop operations with a stack of List containing integers.

12. Write functions in Python for InsertQ(Names) and for RemoveQ(Names) for performing insertion and removal operations with a queue of List which contains names of students.
13. Write a function Show\_words() in Python to read the content of a text file 'NOTES.TXT' and display only such lines of the file which have exactly 5 words in them. Example, if the file contains :  
This is a sample file.  
The file contains many sentences.  
But needs only sentences which have only 5 words.  
Then the function should display the output as :  
This is a sample file.  
The file contains many sentences :
14. Write a function Show\_words() in Python to read the content of a text file 'NOTES.TXT' and display the entire content in capital letters. Example, if the file contains :  
"This is a test file"  
Then the function should display the output as :  
THIS IS A TEST FILE
15. Write a function in Python that counts the number of “Me” or “My” words present in a text file “STORY.TXT”. If the “STORY.TXT” contents are as follows:  
My first book was Me and My Family. It gave me chance to be Known to the world.  
The output of the function should be:  
Count of Me/My in file: 4
16. Write a program to store Books details in MySQL database using Database connectivity Python with MySQL.
17. Write a method in Python to read lines from a text file INDIA.TXT, to find and display the occurrence of the word “India”.  
For example :  
If the content of the file is  
“India is the fastest growing economy.  
India is looking for more investments around the globe.  
The whole world is looking at India as a great market.  
Most of the Indians can foresee the heights that India is capable of reaching.”  
The output should be 4.
18. Consider the following randomly ordered numbers stored in a list :  
786, 234, 526, 132, 345, 467  
Show the content of the list after the First, Second and Third pass of the bubble sort method used for arranging in ascending order ?
19. Write the definition of a method ZeroEnding(SCORES) to add all those values in the list of SCORES, which are ending with zero (0) and display the sum. 3  
For example :

If the SCORES contain [200, 456, 300, 100, 234, 678]

The sum should be displayed as 600

20. Write definition of a method/function AddOddEven(VALUES) to display sum of odd and even values separately from the list of VALUES.

For example :

If the VALUES contain [15, 26, 37, 10, 22, 13]

The function should display

Even Sum: 58

Odd Sum: 65

21. Write a method/function ISTOUPCOUNT() in python to read contents from a text file WRITER.TXT, to count and display the occurrence of the word “IS” or “TO” or “UP”.

For example :

If the content of the file is

IT IS UP TO US TO TAKE CARE OF OUR SURROUNDING. IT IS NOT  
POSSIBLE ONLY FOR THE GOVERNMENT TO TAKE  
RESPONSIBILITY

The method/function should display

Count of IS TO and UP is 6

22. Write a method/function AEDISP() in python to read lines from a text file WRITER.TXT, and display those lines, which are starting either with A or starting with E.

For example :

If the content of the file is

A CLEAN ENVIRONMENT IS NECESSARY FOR OUR GOOD HEALTH.  
WE SHOULD TAKE CARE OF OUR ENVIRONMENT.  
EDUCATIONAL INSTITUTIONS SHOULD TAKE THE LEAD.

The method should display

A CLEAN ENVIRONMENT IS NECESSARY FOR OUR GOOD HEALTH.  
EDUCATIONAL INSTITUTIONS SHOULD TAKE THE LEAD.

### Questions Based on Database (SQL)

1. Consider the following table named “Product”, showing details of products being sold in a grocery shop.

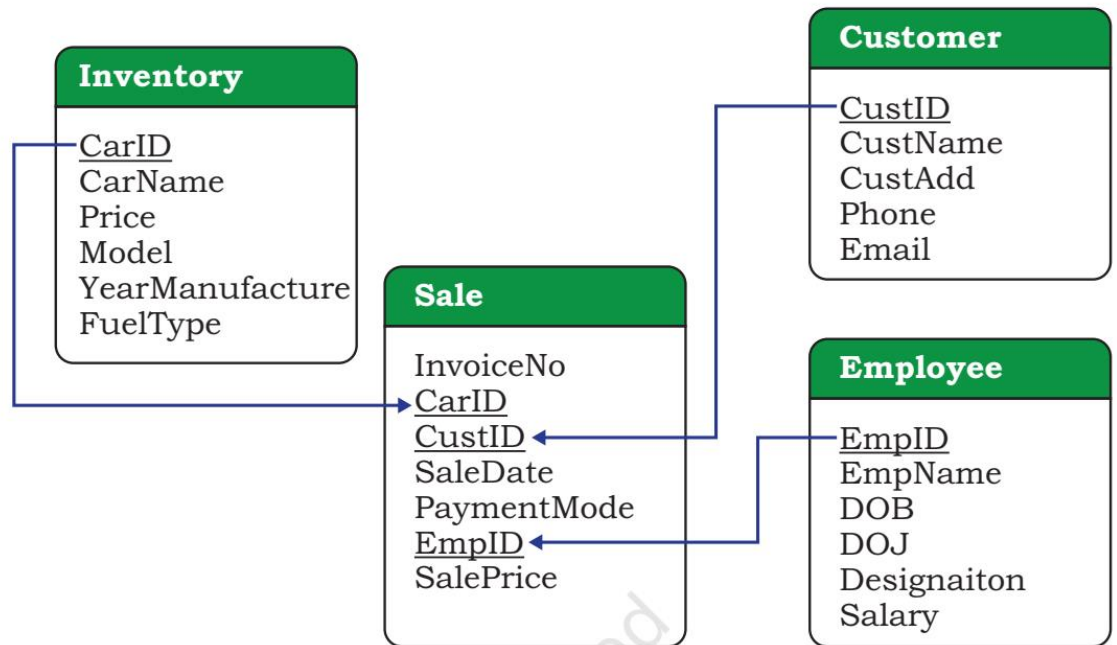
PCode	PName	UPrice	Manufacturer
P01	Washing Powder	120	Surf
P02	Toothpaste	54	Colgate
P03	Soap	25	Lux
P04	Toothpaste	65	Pepsodent
P05	Soap	38	Dove
P06	Shampoo	245	Dove

Write SQL queries for the following:

- Create the table Product with appropriate data types and constraints.
- Identify the primary key in Product.
- List the Product Code, Product name and price in descending order of their product name. If PName is the same, then display the data in ascending order of price.
- Add a new column Discount to the table Product.
- Calculate the value of the discount in the table Product as 10 per cent of the UPrice for all those products where the UPrice is more than 100, otherwise the discount will be 0.
- Increase the price by 12 per cent for all the products manufactured by Dove.
- Display the total number of products manufactured by each manufacturer.

Write the output(s) produced by executing the following queries on the basis of the information given above in the table Product:

- SELECT PName, Average (UPrice) FROM Product GROUP BY Pname;
  - SELECT DISTINCT Manufacturer FROM Product;
  - SELECT COUNT (DISTINCT PName) FROM Product;
  - SELECT PName, MAX(UPrice), MIN(UPrice) FROM Product GROUP BY PName;
2. Using the CARSHOWROOM database, write the SQL queries for the following:



### Schema Diagram of CARSHOWROOM database

- a) Add a new column Discount in the INVENTORY table.
  - b) Set appropriate discount values for all cars keeping in mind the following:
    - (i) No discount is available on the LXi model.
    - (ii) VXi model gives a 10 per cent discount.
    - (iii) A 12 per cent discount is given on cars other than LXi model and VXi model.
  - c) Display the name of the costliest car with fuel type "Petrol".
  - d) Calculate the average discount and total discount available on Baleno cars.
  - e) List the total number of cars having no discount.
3. Write SQL queries for (i) to (iv) and find outputs for SQL queries (v) to (viii), which are based on the tables.

**TABLE : ACCOUNT**

ANO	ANAME	ADDRESS
101	Nirja Singh	Bangalore
102	Rohan Gupta	Chennai
103	Ali Reza	Hyderabad
104	Rishabh Jain	Chennai
105	Simran Kaur	Chandigarh

**TABLE : TRANSACT**

TRNO	ANO	AMOUNT	TYPE	DOT
T001	101	2500	Withdraw	2017-12-21
T002	103	3000	Deposit	2017-06-01
T003	102	2000	Withdraw	2017-05-12
T004	103	1000	Deposit	2017-10-22
T005	101	12000	Deposit	2017-11-06

- (i) To display details of all transactions of TYPE Deposit from Table TRANSACT.
  - (ii) To display the ANO and AMOUNT of all Deposits and Withdrawals done in the month of October 2017 from table TRANSACT.
  - (iii) To display the last date of transaction (DOT) from the table TRANSACT for the Accounts having ANO as 103.
  - (iv) To display all ANO, ANAME and DOT of those persons from tables ACCOUNT and TRANSACT who have done transactions less than or equal to 3000.
  - (v) SELECT ANO, ANAME FROM ACCOUNT WHERE ADDRESS NOT IN ('CHENNAI', 'BANGALORE');
  - (vi) SELECT DISTINCT ANO FROM TRANSACT;
  - (vii) SELECT ANO, COUNT(\*), MIN(AMOUNT) FROM TRANSACT GROUP BY ANO HAVING COUNT(\*) > 1;
  - (viii) SELECT COUNT(\*), SUM(AMOUNT) FROM TRANSACT WHERE DOT <= '2017-06-01';
4. Write SQL queries for (i) to (iv) and write outputs for SQL queries (v) to (viii), which are based on the table given below :

**Table : TRAINS**

TNO	TNAME	START	END
11096	Ahimsa Express	Pune Junction	Ahmedabad Junction
12015	Ajmer Shatabdi	New Delhi	Ajmer Junction
1651	Pune Hbj Special	Pune Junction	Habibganj
13005	Amritsar Mail	Howrah Junction	Amritsar Junction
12002	Bhopal Shatabdi	New Delhi	Habibganj
12417	Prayag Raj Express	Allahabad Junction	New Delhi
14673	Shaheed Express	Jaynagar	Amritsar Junction
12314	Sealdah Rajdhani	New Delhi	Sealdah
12498	Shane Punjab	Amritsar Junction	New Delhi
12451	Shram Shakti Express	Kanpur Central	New Delhi
12030	Swarna Shatabdi	Amritsar Junction	New Delhi

Table : PASSENGERS

PNR	TNO	PNAME	GENDER	AGE	TRAVELDATE
P001	13005	R N AGRAWAL	MALE	45	2018-12-25
P002	12015	P TIWARY	MALE	28	2018-11-10
P003	12015	S TIWARY	FEMALE	22	2018-11-10
P004	12030	S K SAXENA	MALE	42	2018-10-12
P005	12030	S SAXENA	FEMALE	35	2018-10-12
P006	12030	P SAXENA	FEMALE	12	2018-10-12
P007	13005	N S SINGH	MALE	52	2018-05-09
P008	12030	J K SHARMA	MALE	65	2018-05-09
P009	12030	R SHARMA	FEMALE	58	2018-05-09

- To display details of all Trains which Start from New Delhi.
- To display the PNR, PNAME, GENDER and AGE of all Passengers whose AGE is below 50.
- To display total number of MALE and FEMALE Passengers.
- To display details of all Passengers travelling in Trains whose TNO is 12015.
- SELECT MAX (TRAVELDATE), MIN(TRAVELDATE)  
FROM PASSENGERS WHERE GENDER = 'FEMALE';
- SELECT END, COUNT(\*) FROM TRAINS GROUP BY END  
HAVING COUNT(\*)>1;
- SELECT DISTINCT TRAVELDATE FROM PASSENGERS;
- SELECT TNAME, PNAME FROM TRAINS T, PASSENGERS  
P WHERE T.TNO = P.TNO AND AGE BETWEEN 50 AND 60;

Program based on Database connectivity

- Write a program to connect Python with MySQL using database connectivity and perform the following operations on data in database: Fetch, Update and delete the data