

FLUTTER PRACTICE PROBLEMS

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DART (CLO-1)

Question A1:

Write a program that takes as input the command line arguments of types string, integer and decimal value. In case of a string, its length should be displayed, for an integer value, it should be multiplied by 100, and for a decimal value, we need to take its power of 3.

Question A2:

Create a list of records, consisting of name and age values. Sort list with respect to name and age.

Question A3:

Create a list of integers, 10, 20, 30, 40.
Create another list using the first list, such that at its initialization, the new list is initialized like this:
Item 1: 10, Item 2: 20, Item 3: 30, Item 4: 40.

Question A4:

Suppose we have a list of 4 integers. You need to sum the elements of the list without using any loops or calling list elements through their indexes.

Question A5:

Suppose we have two numbers $a=10$ and $b=20$. You need to swap the numbers without using any third temporary variable, or any arithmetic or logical operators.

Question A6:

Suppose you have a range of numbers, and their respective grades:

10 – 30, grade E
31 – 50, grade D
51 – 70, grade C
71 – 90, grade B
91 – 100, grade A

Write a switch – case statement, that takes the marks and show the grade.

Question A7:

Create a Map with positions and names. Sort the set with respect to the positions.

For example:

4, Shahid
2, Noman
1, Faisal
3, Javed

Use sort function.

Question B7:

Create a list of Map with the following items:

```
{"position": 10, "name": "Jawad"},  
{"position": 33, "name": "Faisal"},  
{"position": 4, "name": "Zahid"},  
{"position": 6, "name": "Ali"},  
{"position": 9, "name": "Noman"},
```

```
{"position": 4, "name": "Ben"},
```

Sort the list with first with respect to position, and then with respect to name in case the positions are same.

Question B8:

Create a list of Map with the following items:

```
{"name": "Ali", "age": 45, "marks": 32 },
```

```
{"name": "Noman", "age": 32, "marks": 23 },
```

```
{"name": "Faisal", "age": 41, "marks": 43 },
```

```
{"name": "Noman", "age": 11, "marks": 43 },
```

```
{"name": "Faisal", "age": 8, "marks": 43 },
```

Print those records whose age is greater than 30 and whose name is either Noman or Faisal

Question A8:

Write an example of function definition and function call with named parameters.

Question A9:

Write arrow functions for the following equations:

$$A = x^2 + 2xy + P.z$$

$$A = n^2 + qn + 1$$

$$Z = x^2 + 4y^2 - 8y + 2x$$

Question A10:

Suppose the equation is:

$$Z = x^2 + 4y^2 - 8N + 2x$$

Where N is represented by a separate equation:

$$N = p^2z + rq^2 + s$$

Solve 'Z' with arrow function. Note, here you are calling an arrow function within an arrow function.

Question A11:

Write the following expressions using Dart arrow functions. DO NOT change the variable names and function names as provided below, otherwise it will be considered an incorrection solution.

$$N = x^3 + a^3$$

$$Z = s^2 + 5t + N/2$$

$$A = 2x + yZ^2$$

Question A12:

Write an example of arrow function taking two string arguments, and returning concatenated string.

Question A13:

Given the following list: ['apples', 'bananas', 'oranges'];

Append a string with each element of the list and capitalize each element of list. Use a combination of map and forEach function.

Question A14:

Create a small calculator application using typedef functions performing these operations, add, subtract, multiply, and divide.

Question A15:

Suppose you have the following array,

```
List<Map<String, String>> myArray = [
  {'name': 'ali', 'age': '45'},
```

```
{'name': 'noman', 'age': '34'},  
];
```

Display the key and value of array elements using for and forEach.

Question A16:

Suppose we have the following arrays:

```
var myArray1 = [3, 4, 5]  
var myArray2 = [6, 7, 8]
```

Write code to append the myArray2 into myArray1.

Question A17:

Suppose we have an Dart object { name: 'Devin', hairColor: 'brown' }
Write code to change value of hairColor using spread syntax (...) three dots.

Question A18:

Write an example of defining an arrow function within another arrow function.

Question A19:

Create a class Person with attributes: id, name, age.

Derive two classes from person, named Student and Teacher.

The extra attributes of Student are cgpa, currently enrolled semester (e.g., FA22 or SP22, etc), admission date.

The extra attributes of Teacher are salary, designation (Lecturer, Assistant Professor, Professor, etc), department, and joining date.

Populate at least 3 records in each class use class objects.

A user should be able to search a student or teacher with the provided ID. You should store objects of Teacher and Student in a list.

Print list of students whose cgpa is greater than 3.7.

Question A20:

Given the following list of objects, you need to write `myObjects.where().forEach()` function, so that the name, age, and marks of those students are printed on screen whose age is greater than 25 and marks are greater than equal to 50, and name is Alice or Bob

```
myObjects.add(Student('Alice', 25, 55));  
myObjects.add(Student('Bob', 30, 50));  
myObjects.add(Student('Alice', 27, 40));  
myObjects.add(Student('Charlie', 22, 45));
```

Question B1:

Given the following list of objects, you need to write `myObjects.where().forEach()` function, so that the name, age, and marks of those students are printed on screen whose age is greater than 30 and name is Noman or Faisal.

```
Student(name:"Ali", age:45, marks:32 ),  
Student(name:"Faisal", age:41, marks:43 ),  
Student(name:"Noman", age:11, marks: 43),  
Student(name:"Faisal", age:8, marks:43)
```