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Assignment 4

Question 1

How to duplicate repeating items inside a Dart list?

Problem:

Consider the code: final List _nameList = [Bilal, Bilal, Bilal, Owais, Owais, Owais]

What can be done in order to not repeat Bilal and Owais multiple times?

```
void main() {
  List names = ["Bilal", "Bilal", "Bilal", "Owais", "Owais", "Owais"];
  print(names.toSet().toList());
}
```

Question 2

Let's say you are given a list saved in a variable:

Consider a = [1, 4, 9, 16, 25, 36, 49, 64, 81, 100].

Write a code that takes this list and makes a new list that has only the even elements of this list in it.

```
void main() {
  List a = [1, 4, 9, 16, 25, 36, 49, 64, 81, 100];
  List.of(a);
  var evenNumbers = a.where((number) => number.isEven);
  evenNumbers = evenNumbers.toList()..sort();
  print(evenNumbers);
}
```

Question 3

Ask the user for a number and determine whether the number is prime or not

```
import 'dart:io';
import 'dart:math';
```

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```
void main() {
  int flag = 0;
  print('Enter number to check prime or not');
  int? num = int.parse(stdin.readLineSync()!);
  for (int i = 2; i <= sqrt(num); i++) {
    if (num % i == 0) {
      print("$num is not Prime");
      flag = 1;
      break;
    }
  }
  if (flag == 0) {
    print('$num is Prime');
  }
}
```

Question 4

Write a program to print multiplication table of 7 length 15 using loop.

```
void main() {
  print("Table of 7");
  for (int i = 1; i <= 15; ++i) {
    print("7 x $i = ${7 * i}");
  }
}
```

Question 5

Write a program to print items of the following array using for loop: fruits = [“apple”, “banana”, “mango”, “orange”, “strawberry”].

```
void main() {
```

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```
  List fruits = ["apple", "banana", "mango", "orange", "strawberry"];
   for (int i = 0; i <= 4; ++i)
   {
   print("fruit no ${i+1} = ${fruits[i]}");
   }
}
```

Question 6

Write a program to print multiples of 5 ranging 1 to 100.

```
void main() {
  print("Table of 5");
   for (int i = 1; i <= 100; ++i){
   print("5 x $i = ${5*i}");
   }
}
```

Question 7

The Temperature Converter: It's hot out! Let's make a converter based on the steps here

a. Store a Celsius temperature into a variable.

b. Convert it to Fahrenheit & output "NNoC is NNoF".

c. Now store a Fahrenheit temperature into a variable.

d. Convert it to Celsius & output "NNoF is NNoC"

```
 import 'dart:io';

void main() {
  double tempCelcius, tempFahrenheit;
  num? choice;
  print('Choose\n1. Celsius to Fahrenheit\n2.Fahrenheit to Celsius');
  choice = int.parse(stdin.readLineSync()!);
```

```
  switch (choice) {
    case 1:
      {
        print("Enter temperature in Celsius: ");
        tempCelcius = double.parse(stdin.readLineSync()!);
        tempFahrenheit = (tempCelcius * 9 / 5) + 32;
        print("$tempCelcius Celsius = $tempFahrenheit Fahrenheit");
      }
      break;
    case 2:
      {
        print("Enter temperature in Fahrenheit: ");
        tempFahrenheit = double.parse(stdin.readLineSync()!);
        tempCelcius = ((tempFahrenheit - 32) * 5 / 9);
        print("$tempFahrenheit Fahrenheit = $tempCelcius Celsius");
        break;
      }
    default:
  }
}
```

Question 8

Write a program to create a calculator for +, -, *, / & % using if statements. Take the following input:

a. First number Second number b. Operation (+, -, *, /, %). Compute & show the calculated result to user.

```
void main() {
  num a, b;
  var op;
```

```
  print("Enter First Number: ");
  a = int.parse(stdin.readLineSync()!);
  print("Enter Second Number: ");
  b = int.parse(stdin.readLineSync()!);
  print("Enter an Operator: ");
  op = stdin.readLineSync();
  switch (op) {
    case '+':
      print('The answer is ${a + b}');
      break;
    case '-':
      print('The answer is ${a - b}');
      break;
    case '*':
      print('The answer is ${a * b}');
      break;
    case '/':
      print('The answer is ${a / b}');
      break;
    case '%':
      print('The answer is ${a % b}');
      break;
    default:
  }
}
```

Question 9

Write a program that takes a character (I. e. string of length 1) and returns true if it is a vowel, false otherwise.

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```
import 'dart:io';


void main() {
  print('Enter a character:');
  String? x = stdin.readLineSync();
  if (x == 'a' || x == 'e' || x == 'i' || x == 'o' || x == 'u' || x == 'A' || x == 'E' || x == 'I' || x == 'O' || x == 'U') {
    print('$x is a vowel');
  } else {
    print('$x is a consonant');
  }
}
```

Question 10

Write a program to reverse a string. For example, if my string is "natsikaP nawaJ" then my result will be "Jawan Pakistan".

```
import 'dart:io';


void main() {
  String input = stdin.readLineSync()!;
  input = input.split("").reversed.join("");
  print(input);
}
```

Question 11

How are duplicates removed from a given array? [Ahmed, Bilal, Muhammad, Owais, Muhmmad, Ali, Ahmed]

```
void main() {
  List names = [
```

```
    "Ahmed",
    "Bilal",
    "Muhammad",
    "Owais",
    "Muhmmad",
    "Ali",
    "Ahmed"
  ];
  List ans = [
    ...{...names}
  ];
  print(ans);
}
```

Question 12

Find the missing number in array of 1 to 100?

```
void main ()
{
  List a = [1, 2, 4, 5, 7, 9, 11];
  int num = 0;
for(int num in a){
  if(a.contains(num+1) == false && a.last != num){
    print (num+1);
  }
}
}
```

Question 13

Find the largest and smallest number in an unsorted integer array.

```
void main ()
```

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```
{
  List num = [59, 72, 43, 19, 8];
  var largestNumber = num[0];
  var smallestNumber = num[0];
  for (var i = 0; i < num.length; i++) {
    if (num[i] > largestNumber) {
      largestNumber = num[i];
    }
    if (num[i] < smallestNumber) {
      smallestNumber = num[i];
    }
  }
  print("Largest value in the list : $largestNumber");
  print("Smallest value in the list : $smallestNumber");
}
```