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Assignment 3

1. How to duplicate repeating items inside a Dart list?

   Problem

   Consider the code:

   List<String> ballList = ["bilal","ali","owais","bilal","owais"] What can to be done in order to not repeat Ball () multiple times?

```
void main() {
    List<String> ballList = ["bilal",
"ali", "owais", "bilal", "owais"];
    print("Before using Function toSet \n
$ballList \n");
    print("After using Function of toSet
");
    print(ballList.toSet());
     }
```

```
Console

Before using Function toSet
 [bilal, ali, owais, bilal, owais]

After using Function of toSet
{bilal, ali, owais}
```

2. How to get difference of lists in Flutter/Dart?

   Problem

   Consider you have two lists [1,2,3,4,5,6,7] and [3,5,6,7,9,10]. How would you get the difference as output? eg. [1, 2, 4]

```
    void main() {
    List lst1 = [1, 2, 3, 4, 5, 6, 7];
    List lst2 = [3, 5, 6, 7, 9, 10];
    lst1.removeWhere((e) = >
lst2.contains(e));
    print("List1 == $lst1 ");
    print("List1 == $lst2 \n");
    print("list1 difference list 2
$lst1");
     }
```

```
Console

List1 == [1, 2, 4]
List1 == [3, 5, 6, 7, 9, 10]

list1 difference list 2 [1, 2, 4]
```

3. 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];
    a.retainWhere((e) = > e % 2 == 0);
    print(a);

     }
```

```
Console

[4, 16, 36, 64, 100]
```

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

```
void main() {
var check =15;
var count =0;;

  for(var i=0;i<=100;i++){
    if(check%check==0&&check%i==0){
      count++;
    }
  }
  if(count>2){
    print("your given number $check is not a prime number :");
  }
  else{
    print("your given number $check is prime :");
  }}
```

```
Console
your given number 15 is not a prime number :
```

```
Console
your given number 37 is prime :
```

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

```
void main() {

    for (var i = 1; i <= 15; i++) {
        print("7 X $i = ${7*i} ");
    }
}
```

```
Console
7 X 1 = 7
7 X 2 = 14
7 X 3 = 21
7 X 4 = 28
7 X 5 = 35
7 X 6 = 42
7 X 7 = 49
7 X 8 = 56
7 X 9 = 63
7 X 10 = 70
7 X 11 = 77
7 X 12 = 84
7 X 13 = 91
7 X 14 = 98
7 X 15 = 105
```

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

```
void main() {
    List fruits = ["apple", "banana", "mango", "orange",
"strawberry"];
    for (var i = 1; i < fruits.length; i++) {
        print(fruits[i]);
    }
      }
```

```
Console
banana
mango
orange
strawberry
```

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

```
void main() {
    for (var i = 1; i <= 100; i++) {
        if (i % 5 == 0) {
            print(i);
        }
    }
}
```

```
Console

5
10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100
```

8. 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".

```
Console

The Temperature Converter
Your Given Temperature in 35 C  == 95 F
Your Given Temperature in 120 F  == 48.89 C
```

```
void main() {
    num celsius = 35;
    num farenheit = 120;
    num calc_F = 0;
    num calc_C = 0;
    print("The Temperature Converter");
    calc_F = (celsius * 9 / 5) + 32;
    calc_C = (farenheit - 32) * 5 / 9;
    print("Your Given Temperature in $celsius C  == $calc_F F");
    print("Your Given Temperature in $farenheit F  == ${calc_C.toStringAsFixed(2)} C");

}
```

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9. 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() {
   int opt = 1;
   num add, sub, mul, div, rem;
   num num1 = 5;
   num num2 = 9;
   do {
       print("Enter your Choice \n");
       print("1.  Addition       + ");
       print("2.  Subtraction    - ");
       print("3.  Multipliction  * ");
       print("4.  Division       / ");
       print("5.  Remainder      % ");
       print("0.  Exit Calculator  ");

       if (opt != 0) {
           print("Enter Your  1st number : $num1");
           print("Enter Your  2nd number : $num2");
       }
       if (opt == 1) {
           add = num1 + num2;
           print("Result = $add");
       }
       if (opt == 2) {
           sub = num1 - num2;
           print("Result = $sub");
       }
       if (opt == 3) {
           mul = num1 * num2;
           print("Result = $mul");
       }
       if (opt == 4) {
           div = num1 / num2;
           print("Result = $div");
       }
       if (opt == 5) {
           rem = num1 % num2;
           print("Result = $rem");
       }
   } while (opt != 1);
}
```

```
Console

  Enter your Choice

  1.  Addition       +
  2.  Subtraction    -
  3.  Multipliction  *
  4.  Division       /
  5.  Remainder      %
  0.  Exit Calculator
  Enter Your  1st number : 5
  Enter Your  2nd number : 9
  Result = 14
```

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

```
void main() {

    List vowels = ['A', 'E', 'I', 'O', 'U', 'a', 'e', 'i', 'o', 'u'];
    var inpt = "A";
    bool check = false;
    for (var i = 0; i < vowels.length; i++) {
        if (inpt == vowels[i]) {
            check = true;
        }
    }
    print("The Character you Entered $inpt");
    print("Is Character Vowel :: $check");
}
```