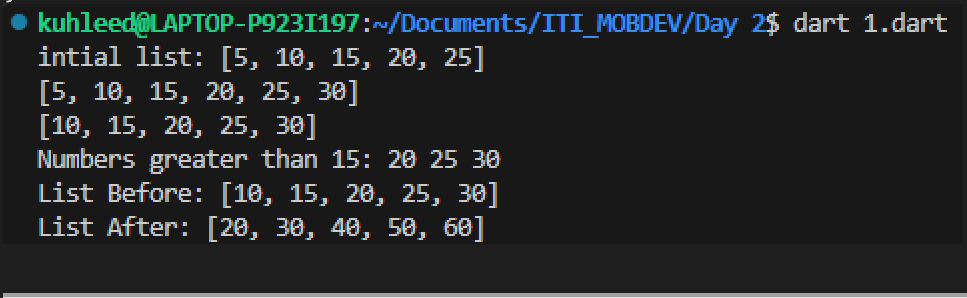
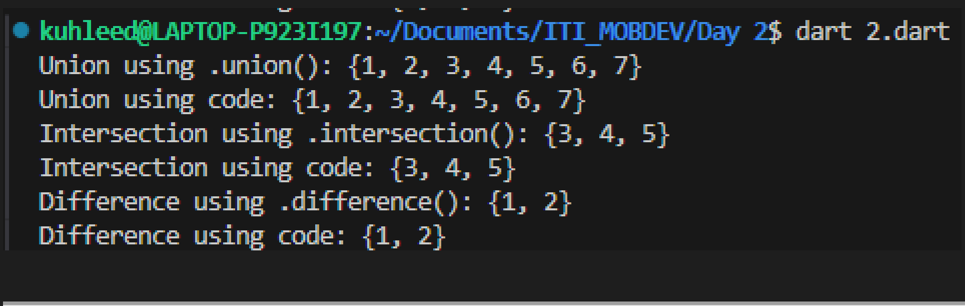
```dart
//Exercise 1
import 'dart:io';

void main(){
  //Create a list of integers: [5, 10, 15, 20, 25].
  List L = [5,10,15,20,25];
  print("intial list: ${L}");
  //Add 30 to the List.
  L.add(30);
  print(L);
  //Remove the first element
  L.removeAt(0);
  print(L);
  //Find all numbers greater than 15.
  stdout.write("Numbers greater than 15: ");
  for(int i in L){
    if(i > 15){
      stdout.write("${i} ");
    }
  }
  print('');
  //Multiply all numbers in the list by 2.
  print("List Before: ${L}");
  for(int i=0;i<L.length;i++){
    L[i] *= 2;
  }
  print("List After: ${L}");
}
```



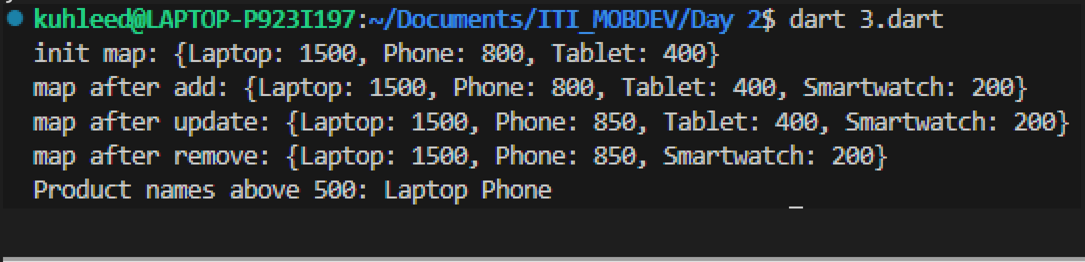
```
● kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 1.dart
  intial list: [5, 10, 15, 20, 25]
  [5, 10, 15, 20, 25, 30]
  [10, 15, 20, 25, 30]
  Numbers greater than 15: 20 25 30
  List Before: [10, 15, 20, 25, 30]
  List After: [20, 30, 40, 50, 60]
```

```dart
//Exercise 2
void main(){
  Set<int> A = {1,2,3,4,5};
  Set<int> B = {3,4,5,6,7};
  //Find the union of both sets.
  //1
  Set<int> U1 = A.union(B);
  print("Union using .union(): ${U1}");
  //2
  Set<int> U2 = {};
  U2.addAll(A);
  // for(int i in B){
  //   U2.add(i);
  // }
  U2.addAll(B);
  print("Union using code: ${U2}");

  //Find the intersection of both sets.
  //1
  Set<int> I1 = A.intersection(B);
  print("Intersection using .intersection(): ${I1}");
  //2
  Set<int>? I2 = {};
  Map x = {};//will be used as hash map O(n) rather than O(n.m)
  for(int i in A){
    x[i] = 1;
  }
  for(int i in B){
    // if(x.containsKey(i)){
    //   I2.add(i);
    // }
    if(x[i]==1){
      I2.add(i);
    }
    // print("x[${i}] : ${x[i]}"); //if key not found it will be null
  }
  print("Intersection using code: ${I2}");
  //Find the difference between the first set and the second set.
  //1
  Set<int> D1 = A.difference(B);
  print("Difference using .difference(): ${D1}");
  //2
  Set<int> D2 = {};
  x = {};
  for(int i in A){
    x[i] = 1;//appears in 1
  }
  for(int i in B){
    if(x[i] != null){
      x[i] += 2;//3 appears in both
    }else{
      x[i]=2;//appears in 2
    }
  }
  for(int i in x.keys){
    if(x[i]==1){//1 in A, 2 in B, 3 in both
      D2.add(i);
    }
  }
  print("Difference using code: ${D2}");
}
```



```
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 2.dart
Union using .union(): {1, 2, 3, 4, 5, 6, 7}
Union using code: {1, 2, 3, 4, 5, 6, 7}
Intersection using .intersection(): {3, 4, 5}
Intersection using code: {3, 4, 5}
Difference using .difference(): {1, 2}
Difference using code: {1, 2}
```

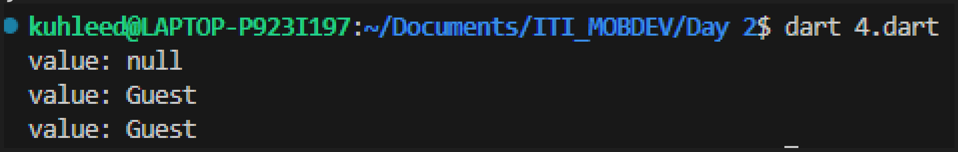
```
//Exercise 3
import 'dart:io';
void main(){
  Map m1 = { "Laptop": 1500, "Phone": 800, "Tablet": 400 };
  print("init map: ${m1}");
  //Add a new product: "Smartwatch":200
  m1["Smartwatch"]=200;
  print("map after add: ${m1}");

  //Update the price of "Phone" to 850
  m1["Phone"]=850;
  print("map after update: ${m1}");

  //Remove the "Tablet".
  m1.remove("Tablet");
  print("map after remove: ${m1}");

  //Print all product names whose price is above 500.(bouns)
  stdout.write("Product names above 500: ");
  for(String i in m1.keys){
    if(m1[i] > 500){
      stdout.write("${i} ");
    }
  }
  print('');
}
```



```
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 3.dart
init map: {Laptop: 1500, Phone: 800, Tablet: 400}
map after add: {Laptop: 1500, Phone: 800, Tablet: 400, Smartwatch: 200}
map after update: {Laptop: 1500, Phone: 850, Tablet: 400, Smartwatch: 200}
map after remove: {Laptop: 1500, Phone: 850, Smartwatch: 200}
Product names above 500: Laptop Phone
```

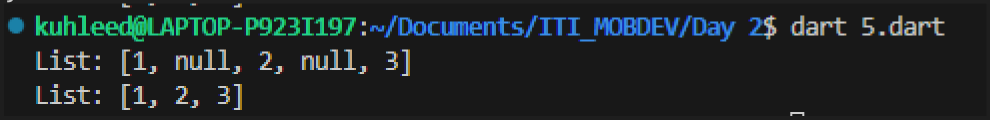
```
//Exercise 4
void main(){
  //Declare a nullable String? variable name.
  String? name;
  print("value: ${name}");
  //If the variable is null, assign it the value "Guest".
  // name=(name==null)?"Guest":name;
  name??(name="Guest");
```

```dart
  //Print the value of name.
  print("value: ${name}");

  //or
  String? test;
  print("value: ${test??"Guest"}");
}
```



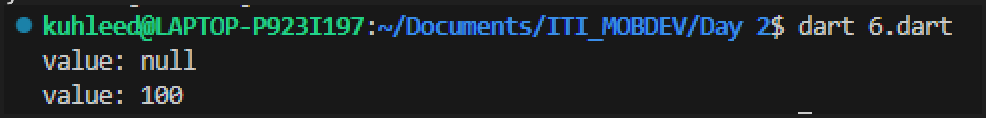
```
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 4.dart
value: null
value: Guest
value: Guest
```

```dart
//Exercise 5

void main(){
  //Create a list of integers that includes some null values: [1, null, 2, null, 3].
  List<dynamic>? L1 = [1,null,2,null,3];
  print("List: ${L1}");
  //Remove all null values from the list and print the updated list.
  while(L1.contains(null)){
    L1.remove(null);
  }
  print("List: ${L1}");
}
```



```
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 5.dart
List: [1, null, 2, null, 3]
List: [1, 2, 3]
```

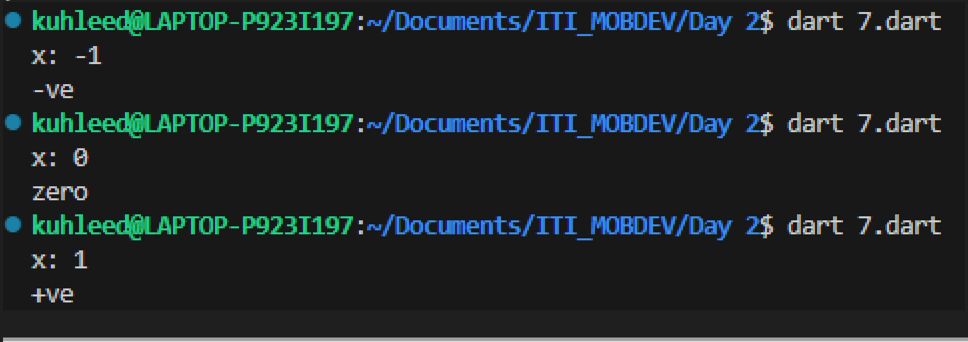
```dart
//Exercise 6

void main(){
  // /Declare a nullable integer int? value.
  int? value;
  print("value: ${value}");
  //If value is null, set it to 100 using the null-aware assignment operator (??=).
  // value??(value=100);
  value??=100;
  //Print the value of value.
  print("value: ${value}");
}
```



```
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 6.dart
value: null
value: 100
```

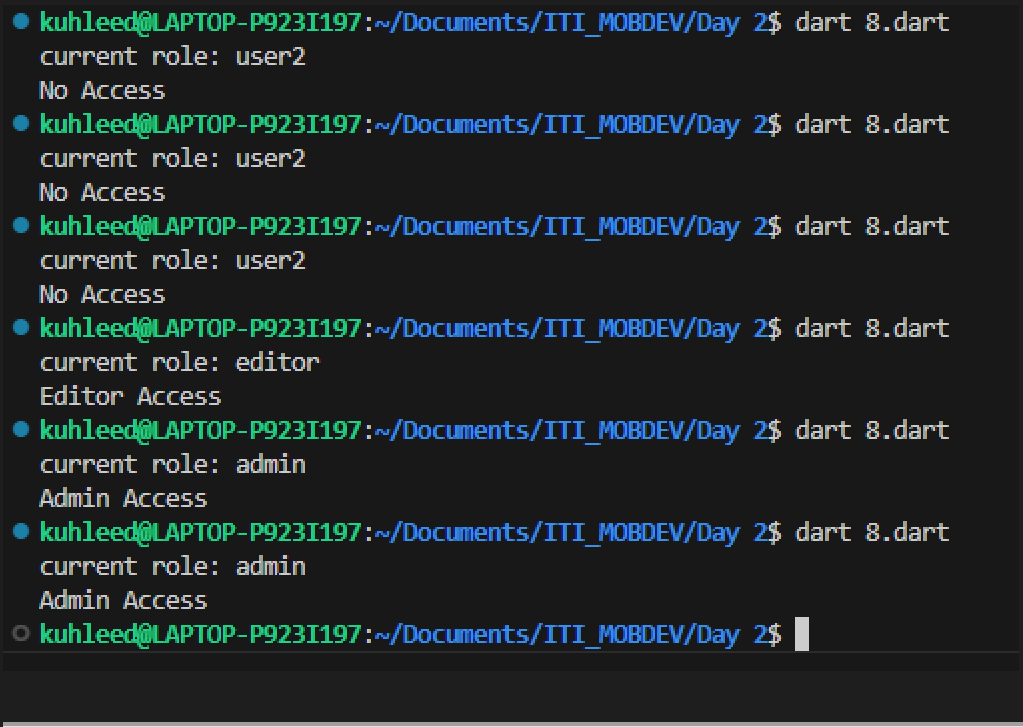
```dart
//Exercise 7

import 'dart:math';
```

```dart
void main(){
  var rng = Random();
  int x = -1 + (rng.nextInt(3));
  print("x: ${x}");
  if(x > 0){
    print("+ve");
  }else if(x < 0){
    print("-ve");
  }else{
    print("zero");
  }
}
```



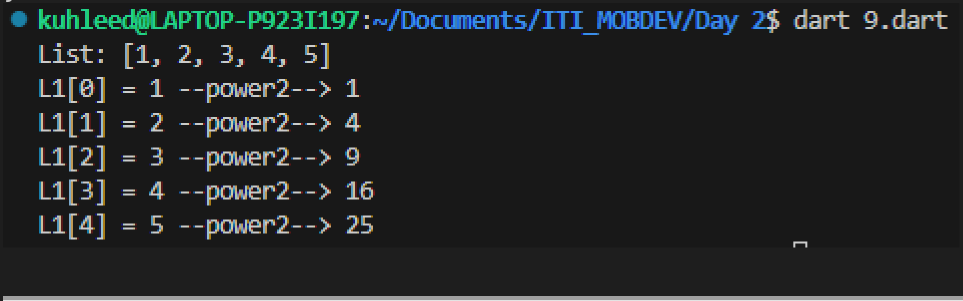
```
● kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 7.dart
  x: -1
  -ve
● kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 7.dart
  x: 0
  zero
● kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 7.dart
  x: 1
  +ve
```

```dart
//Exercise 8
import 'dart:math';

void main(){
  //Declare a variable role with the value "editor".
  var rng = Random();
  //random value
  String role = (["admin","editor","viewer","user1","user2"])[rng.nextInt(5)];
  print("current role: ${role}");
  /*
  Use a switch case to print:
    "Admin Access" if role is "admin".
    "Editor Access" if role is "editor".
    "Viewer Access" if role is "viewer".
    "No Access" for any other value.
  */
  switch (role) {
    case "admin":
      print("Admin Access");
      break;
    case "editor":
      print("Editor Access");
    case "viewer":
      print("Viewer Access");
    default:
      print("No Access");
  }
}
```



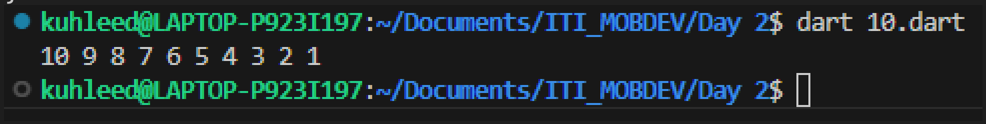
```
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 8.dart
current role: user2
No Access
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 8.dart
current role: user2
No Access
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 8.dart
current role: user2
No Access
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 8.dart
current role: editor
Editor Access
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 8.dart
current role: admin
Admin Access
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 8.dart
current role: admin
Admin Access
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ 
```

```
//Exercise 9

void main(){
  //Create a list of integers [1, 2, 3, 4, 5].
  List<int> L1 = [1,2,3,4,5];
  print("List: ${L1}");
  //Use a for loop to print the square of each number.
  for(int i=0;i<L1.length;i++){
    print("L1[${i}] = ${L1[i]} --power2--> ${L1[i]*L1[i]}");
  }
}
```



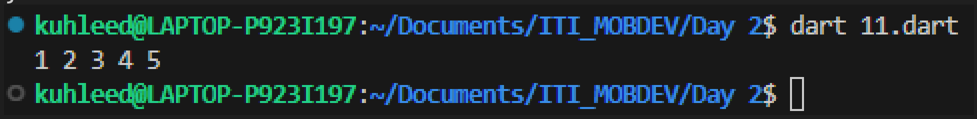
```
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 9.dart
List: [1, 2, 3, 4, 5]
L1[0] = 1 --power2--> 1
L1[1] = 2 --power2--> 4
L1[2] = 3 --power2--> 9
L1[3] = 4 --power2--> 16
L1[4] = 5 --power2--> 25
```

```
//Exercise 10

import 'dart:io';

void main(){
  //Use a while loop to print all numbers from 10 to 1 in reverse order.
  int i=10;
  while(i>=1){
   stdout.write("${i} ");
   i--;
  }
  print('');
}
```



```
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 10.dart
10 9 8 7 6 5 4 3 2 1
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$
```

```
//Exercise 11

import 'dart:io';

void main(){
  //Use a do-while loop to print the numbers from 1 to 5.
  int i=1;
  do{
    stdout.write("${i} ");
    i++;
  }while(i<=5);
  print('');
}
```



```
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$ dart 11.dart
1 2 3 4 5
kuhleed@LAPTOP-P923I197:~/Documents/ITI_MOBDEV/Day 2$
```