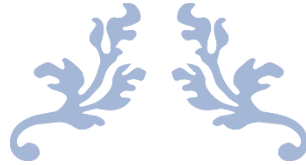# RIPHAH
INTERNATIONAL UNIVERSITY

LAB 01

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Section: SE 5-2

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1. Running the main() Entry Point :

Every Dart program starts with main() (like int main() in C++):

```dart
void main(){
    var main= 'dart';
    print("Hello $main");
}
```

```
C:/flutter/bin/cache/dart-sdk/bin/dart.exe --enable-asserts --no-serve-devtools C:\Users\shehr\StudioProjects\lab1\lib\main.dart
Hello dart

Process finished with exit code 0
```

2. Variables :

- var → Dart figures out the type
- Or declare type directly (int, double, String, bool)

```dart
void main(){
  var main= 'dart';
  print("Hello $main");
  String name='Hammad';
  int  age=20;
  double cgpa=3.40;
  print("my name is $name and age is $age and cgpa is $cgpa ");

}
```

```
C:/flutter/bin/cache/dart-sdk/bin/dart.exe --enable-asserts --no-serve-devtools C:\Users\shehr\StudioProjects\lab1\lib\main.dart
Hello dart
my name is Hammad and age is 20 and cgpa is 3.4

Process finished with exit code 0
```

- **Strings :**

```dart
void main(){
  var main= 'dart';
  print("Hello $main");
  String name='Hammad';
  int  age=20;
  double cgpa=3.40;
  print("my name is $name and age is $age and cgpa is $cgpa ");
  String name2='liaquat';
  String combinedName= 'hammad'+ ' '  +'liaquat';
  print("$combinedName");
  String combinedName2=name + name2;
  print("$combinedName2");
}
```

```
main.dart  ×

C:/flutter/bin/cache/dart-sdk/bin/dart.exe --enable-asserts --no-serv
Hello dart
my name is Hammad and age is 20 and cgpa is 3.4
hammad liaquat
Hammadliaquat


Process finished with exit code 0
```

3. Lists (like arrays in C++):

```dart
void main(){
  var main= 'dart';
  print("Hello $main");
  String name='Hammad';
  int  age=20;
  double cgpa=3.40;
  print("my name is $name and age is $age and cgpa is $cgpa ");
  /*String name2='liaquat';
  String combinedName= 'hammad'+ ' '  +'liaquat';
  print("$combinedName");
  String combinedName2=name + name2;
  print("$combinedName2");*/
  List asiaTopsCountry=['Pakistan','Bangladesh','Sri lanka'];
  asiaTopsCountry.forEach((country) {
    print('Country : $country');
    });
  List asiaTops=['Pakistan','Bangladesh','Sri lanka']; //like C++
  for(int i=0 ; i<asiaTops.length;i++){
    print("Country; ${asiaTops[i]}");
  }
}
```

First of all, we used for each to print array in order.It takes a function (callback), which will run for each element in the list.

Then , I used a for loop syntax to print the list (array) like in C++ ,which runs first I initialize the value of I is o , then condition check if I is smaller than asiatops (array) length then enter the loop and print and increment and so on loop runs till I values(iteration is 3).

```
main.dart  ×

C:/flutter/bin/cache/dart-sdk/bin/dart.exe --enable-asserts --no-serve
Hello dart
my name is Hammad and age is 20 and cgpa is 3.4
Country : Pakistan
Country : Bangladesh
Country : Sri lanka
Country; Pakistan
Country; Bangladesh
Country; Sri lanka
```

4. Map:

A Map is like a dictionary: it stores key–value pairs .Each key must be unique. You use the key to look up its value.

```
21        Map<String, String> record1 = const{
22          'name': 'Hammad',
23          'city' : 'Isb',
24           'Age': '21'
25        };
26        //record1['prevoiusAge']='20';
27        print(record1['Age']);
28        print(record1);
29      }
```

```
Country, Sri Lanka
21
{name: Hammad, city: Isb, Age: 21}


Process finished with exit code 0
```

5. Runes :

- Rune = Unicode code point in Dart.
- Use \u{HEXCODE} to write any symbol/emoji.
- Use String.fromCharCodes() to display them.

```
29        Runes emoji =Runes ('\u{1F604}');
30        print(emoji);
31        print(String.fromCharCodes(emoji));
32        Runes emojis=Runes ('\u{1F604} \u{1F607} \u{1F680}');
33        print(String.fromCharCodes(emojis));
34
35      }
```

```
C:/flutter/bin/cache/dart-sdk/bin/dart.exe --enable-asserts --no
Hello dart
my name is Hammad and age is 20 and cgpa is 3.4
(128516)
😁
😄 😇 🚀

Process finished with exit code 0
```

6. Operations :

- Arthmetic operation :

```dart
//arthmetic operation
int a = 10, b = 3;
print(a + b);
print(a - b);
print(a * b);
print(a / b);
print(a % b);
}
```

```
13
7
30
3.3333333333333335
1

Process finished with exit code 0
```

b > 🔹 main.dart

- **Relational operator:**

```
43          int a = 5, b = 8;
44          print(a == b);   // false
45          print(a != b);   // true
46          print(a < b);    // true
47
48
49     }
```

```
main.dart  ×

C:/flutter/bin/cache/dart-sdk/bin/dart.exe --enable-asser
Hello dart
my name is Hammad and age is 20 and cgpa is 3.4
false
true
true

Process finished with exit code 0
```

- **Logical operator :**

```
49          bool x = true, y = false;
50          print(x && y);   // false
51          print(x || y);   // true
52          print(!x);       // false
53
54
55     }
```

```
main.dart  ×

C:/flutter/bin/cache/dart-sdk/bin/dart.exe --enable-asserts --no-
Hello dart
my name is Hammad and age is 20 and cgpa is 3.4
false
true
false

Process finished with exit code 0
```

- **Assignment Operator:**

```
50          int a = 10;
51          a += 5;    // 15
52          a *= 2;    // 30
53          print(a);
54
55      }
```

```
main.dart  ×

C:/flutter/bin/cache/dart-sdk/bin/dart.exe --enable-a
Hello dart
my name is Hammad and age is 20 and cgpa is 3.4
30

Process finished with exit code 0
```

7. **Classes :**

```dart
class Student {
  String name;
  int age;

  // Constructor
  Student(this.name, this.age);

  void showInfo() {
    print("Name: $name, Age: $age");
  }
}
void main() {
  var main = 'dart';
  print("Hello $main");

  var s1 = Student("Ali", 20);
  s1.showInfo();

}
```

```
C:/flutter/bin/cache/dart-sdk/bin/dart.exe --enable-asserts --n
Hello dart
my name is Hammad and age is 20 and cgpa is 3.4
Name: Ali, Age: 20

Process finished with exit code 0
```

8. **Inheritance:**

```dart
class Animal {
  void sound() {
    print("Animal makes a sound");
  }
}

class Dog extends Animal {
  @override
  void sound() {
    print("Dog barks");
  }
}
```

```dart
var d = Dog();
d.sound();  // Dog barks

}
```

```
C:/flutter/bin/cache/dart-sdk/bin/dart.exe --enable-asserts --
Hello dart
my name is Hammad and age is 20 and cgpa is 3.4
Dog barks

Process finished with exit code 0
```

9. **Class Mixins:**

```dart
25      void walk() => print("Can walk");
26    }
27
28    mixin Swim {
29      void swim() => print("Can swim");
30    }
31
32    class Duck with Walk, Swim {}
33
34    void main() {
100     var D = Duck();
101     D.walk();  // Can walk
102     D.swim();  // Can swim
103   }
```

main.dart ×

```
C:/flutter/bin/cache/dart-sdk/bin/dart.exe --enable-asserts
Hello dart
my name is Hammad and age is 20 and cgpa is 3.4
Dog barks
Can walk
Can swim

Process finished with exit code 0
```