How functions with parameters and return types work.

In the previous lesson we practiced kotlin functions *with and without* parameters ,

In this lesson we will get into kotlin functions that have a **RETURN TYPE.**

Lets look at a simple function that accepts parameters a and b , then finds average and print the answer!

```
fun main(args : Array<String>){
    printAverage(a=8.3, b=7.0)
}
fun printAverage(a: Double, b: Double){
    val average : Double = (a + b)/2
    println("The mean is $average")
}
```

Output

The mean is 7.65

Works.. Above function accepts two Double parameters a and b, find the average and prints, then we call the function in our main .. **printAverage**(a=8.3, b=7.0).

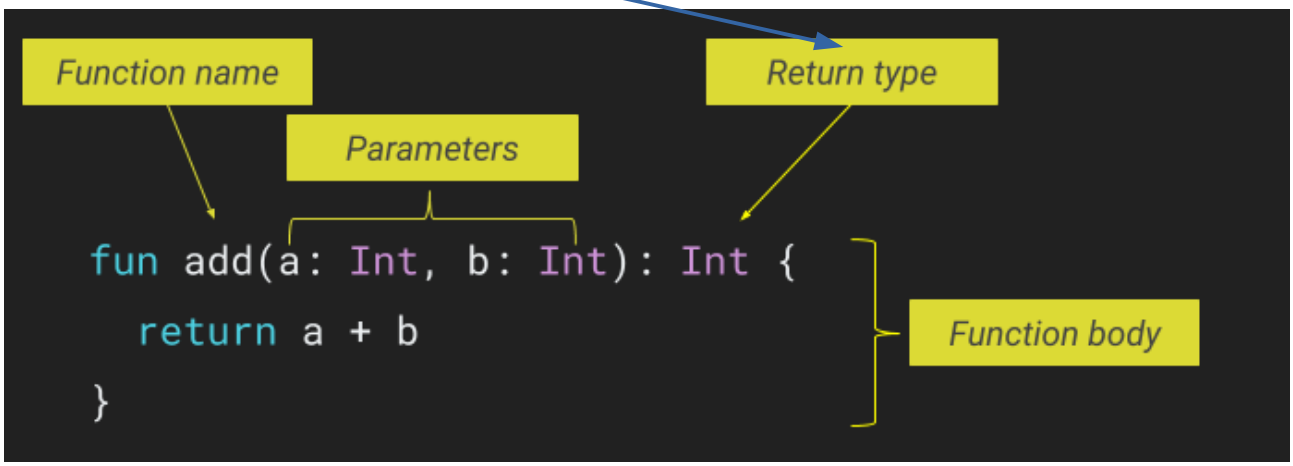
Functions can have a return Type, above does not return any type. Lets now see how can we make it return a type?

The following are common return types for functions in kotlin

1) Unit - means a function will **not** return any value
2) Int - means a function will return an Int value
3) Double - means a function will return a Double value
4) Float - means a function will return a Long value
5) Char - means a function will return a character
6) Long - means a function will return a long number
7) Short - means a function will return a short value
8) Byte - means a function will return a byte
9) String - means a function will return a String

Check https://www.programiz.com/kotlin-programming/variable-types
On data types , also was covered i**n Topic 1**

The **RETURN TYPE** is usually placed at the end of the function definition, then inside the function body you MUST use a return keyword...see below...In the below image the return type is an **Int**



Lets re program our average function to have a return type of **Unit**

```
fun main(args : Array<String>){
    printAverage(a=8.3, b=7.0)
}
fun printAverage(a: Double, b: Double) : Unit{
    val average : Double = (a + b)/2
    println("The mean is $average")
}
```

Output

The mean is 7.65

Notice the output no change in output, because Unit does **not** return an value.

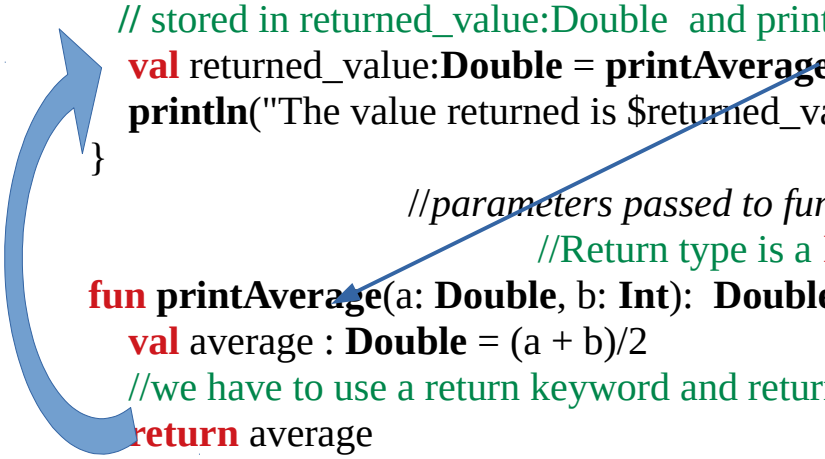
Lets now use either Int, Double, Float and Long return types

NB: if a function return type is a **Double**, The function must return a **Double!**

Lets look at the example below..Next page

RETURNING A DOUBLE

```
fun main(args : Array<String>){
    //here we call  printAverage() provide required parameters
   // Our function printAverage() returns a Double value which is stored in
   // stored in returned_value:Double  and printed
    val returned_value:Double = printAverage(a=8.3, b=7)
    println("The value returned is $returned_value")
}
                        //parameters passed to function
                                //Return type is a Double
fun printAverage(a: Double, b: Int):  Double{
    val average : Double = (a + b)/2
    //we have to use a return keyword and return the average
    return average
}//end
```



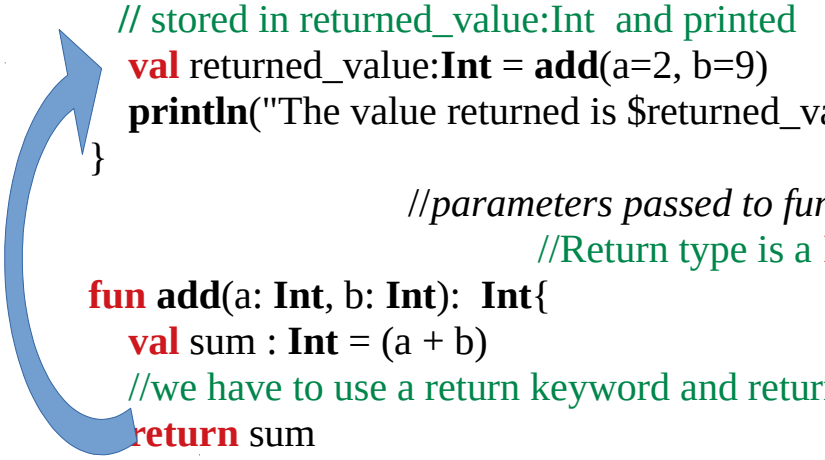
NB: above we provide two parameters (a: **Double**, b: **Int**) find average and **return it as a Double**

Output

The value returned is 7.65

RETURNING AN INT

```
fun main(args : Array<String>){
    //here we call  add() provide required parameters
   // Our function add() returns an Int value which is stored in
   // stored in returned_value:Int  and printed
    val returned_value:Int = add(a=2, b=9)
    println("The value returned is $returned_value")
}
                        //parameters passed to function
                                //Return type is a Int
fun add(a: Int, b: Int):  Int{
    val sum : Int = (a + b)
    //we have to use a return keyword and return the average
    return sum
}//end
```



Ouput

The value returned is 11

Explanation

Above we provide **two Ints(a,b)** as parameter and return an **Int** (the sum).

RETURNING A STRING

```
//check number negative, positive or zero
fun main(args : Array<String>){
    //here we call  check() provide required parameters
   // Our function check() returns a String value which is stored in
   // stored in returned_value:String  and printed
    val returned_value:String= check(number = 3)
    println("The value returned is $returned_value")
}

                                    //Return type is a String
fun check(number: Int): String{
   if(number < 0){
       return "Positive"
   }

   else if(number >0){
       return "Negative"
   }

   else if (number == 0){
       return "Zero"
   }

   else {
       return "Invalid"
   }
    //we have to use a return keyword and return the “Strings” in each condition
}//end
```

Output
The value returned is Negative

Explanation

In the above example, we provide an **Int parameter** to the check() function,, the functions goes ahead and check if number is positive, Negative or zero,, It **returns a string** where condition is true.

Test above codes at https://play.kotlinlang.org

Or in your local machine.

Also check a video attached with practical demonstration on functions with **parameters and returns type.**