Kotlin Basics Cheat Sheet

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val and var

Val is used for immutable variable
Var is used for mutable variable

```
val age = 5
    var name = "Badr"
    name = "Abdullah"
//name has changed
```

User Input

In kotlin readLine is used to get user input

```
val name = readLine()
```

It is a good practice to add a prompt to notify the user on what type of input should be entered

```
print("Please Enter your name: ")
val name = readLine()
```

For null safety (!!) converts any value to a non-null type.

```
val number = readLine()!!.toInt()
```

It tells that the user will definitely enter something.

Data Types

The basic types used in kotlin : number , booleans ,characters , string, and arrays.

Numbers:

```
val numInt = 6
    println(numInt)
 //integer number --> 6
    val numFloat = 6f
    println(numFloat)  //  --> 6.0
```

To avoid type mismatch error we should explicitly assign the data type to the variable

```
var sum = 0
    sum = (numFloat + numInt).toInt()
    println(sum)  //  --> 12
```

Booleans:

```
Val isCorrect= Boolean =true
```

Characters:

```
val aChar: Char = 'a'
```

String:

```
val aString= "Hello World!"
```

Arrays:

```
val aArray = arrayOf(1, 2, 3, 4, 5)
```

String Concatenation Vs Interpolation

In kotlin + sign is used to combine two strings example:

```
val name= "Safa"
Val greeting="Hi"
print(greeting+name)// HiSafa with no space
print(greeting+" "+name)// Hi Safa with space
```

Basic Operations

```
var num = 5
    println(num + 10)  //  --> 15
    println(num)  //  --> 5
```

Incrementing by 1

```
    num = num + 1
    println(num)  //  --> 6
    num += 1
    println(num)  //  --> 7
    num ++
    println(num)  //  --> 8
```

Same thing applies to subtraction, multiplication, and division.

String interpolation allows to inject string variable into a string
Example:
```
val name= "Safa"
Val greeting="Hi"
print("$greeting Amal and $name")
// Hi Amal and Safa
```

When

If is used to execute multiple conditional statements

Modulo operator:
```
println(12 % 4)  //  --> 0
```

If statement

If is used to execute a conditional statement
Example:
```
Var guessNum= readLine()!!.toInt()
if(guessNum==3)//if user enter 3
println("You got it!")//execute this line
else
println("Wrong guess.")
```
We can use (else if) we have to perform many checks

Try/Catch

Is used for error handling in kotlin
Example:
```
    print("Enter a number: ")
    try {
      val userNum =readLine()!!.toInt()
      println(userNum)
    } catch (e: Exception) {
      println("Please enter numbers
only")// the third line would throw an
exception if the user enter a character
or non digit input
}
```

Random module

To create a random number, kotlin offer a Random class in the kotlin.random package
Here to declare a random variable between 0 to 10
```
val randomNumber = Random.nextInt(11)
```

For Loop

For loop is used to iterate through anything that provides an iterator

Example:
```
for(age in 1..10){
     println(age)
  }-> 1 2 3 4 5 6 7 8 9 10
```

While Loop

Works like for loop but we have to declare an iterator outside the loop
Example:
```
var i = 0
   while (i < 10){
      count ++
      println(i)
   }-> 1 2 3 4 5 6 7 8 9 10
```