

### Comments

```
//single-line          comment
/* multiline */       comment
/* blah               comment
/* nested */
blah */
```

### If - Else If - Else Example

```
val count = 42
if (count == 42) {
    println ("I have the answer ")
} else if (count > 35 && count < 49) {
    println ("The answer is close")
} else {
    println ("The answer eludes me.")
}
```

### When Example

```
val answerString = when {
    count == 42 -> "I have the answer "
    count > 35 -> "The answer is close."
    else -> "The answer eludes me."
}
```

### Array Examples

```
// once an array is created the size is fixed
val school = arrayOf("s har k", " sal mon ", " -
min now ", 2)
println(java.util.Arrays.toString(school))
//mixed type array
val numbers = intArrayOf(1,2,3)
//print array
for (element in school){
    print(element + " ")
}
// concat enate arrays
array3 = array1 + array2
// initialize array with code
val array = Array(5) { it * 2}
```

elements cannot be added or removed, except by copying to a new array  
can loop through elements and index at the same time

### Lists

```
// create list, cannot be changed
val school = listOf("ma cke rel ", " tro ut")
// create list, can be changed
val myList = mutableListOf("t una ", " sal -
mon ")
myList.remove("shark")
```



By [BeckyIndirectlyToo](#)

[cheatography.com/beckyindirectlytoo/](https://cheatography.com/beckyindirectlytoo/)

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### Functions Example

```
// create function
var count:Int = 42
fun generateAnswerString(): String {
    val answer String = if (count ==42) {
        "I have the answer."
    } else {
        "The answer eludes me"
    }
    return answer String
}
```

### Anonymous Function Example

```
//Anonymous functions
val stringLengthFunc: (String) -> Int = {input -
>
    input.length
}
// call anonymous function
val stringLength: Int = stringLengthFunc("A -
ndroid ")
```

### Class Examples

```
//create class
class Car{
    //properties
    val wheels = listOf <Wheel >()
}
```

### Data Types

Type	Size(bits)	Values
Byte	8	-128 to 127
Short	16	-32768 to 32767
Int	32	$-2^{31}$ to $2^{31} - 1$
Long	64	$-2^{63}$ to $2^{63} - 1$

### Variable Declaration

val count : Int = 10	value can never change
var count : Double = 10.01	value can change
val eFloat : Float = 3.14f	needs the f suffix
val name: String? = null	add ? to make a nullable value
val name : String? = name!!	not-null assertion operator throws exception if full

variable interpolation: \$count

**Kotlin variables can't hold null values by default.**

### For Loop Examples

```
// print index and element
for ((index, element) in school.withIndex()){
    println("Item at $index is $element \n")
}
//print range of numbers or letters
for (i in 'a'..'h') print (i)
```



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### For Loop Examples (cont)

```
> for (i in 5 downTo 1 step 1.5) print(i)
```

### While Examples

```
var bubbles = 0
while (bubbles < 50) {
    bubbles++
}
println("$ bubbles bubbles in the water/ n")
do {
    bubbles--
} while (bubbles > 50)
println("$ bubbles bubbles in the water/ n")
repeat(2) {
    println("A fish is swimmi ng." )
}
```

### Function with Argument Example

```
// call function
val answerString = generateAnswerString()

// function with argument
fun generateAnswerString (countThreshold: Int) :String {
    ...
}
return answerString
}

// call function with argument

val answerString = generateAnswerString(42)
```

### Void Function Example

```
// void function
fun printSum(a: Int, b: Int): Unit {
    println("sum of $a and $b is ${a + b}")
}
```

### Higher-Order Functions

```
// functions that can take functions as arguments
fun stringMapper (str: String, mapper: (String)
-> Int): Int {
    //Invoke function
    return mapper (str)
}
/**an onymous function can be called outside the
parent hesis
stringMapper ("An dro id") { input ->
    input.length
}
```



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