



A Basic Overview of Coding in Java

Variables



Integers [int]

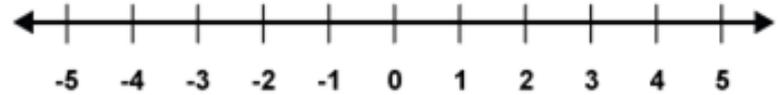
- Integer values (whole numbers)
- Can be positive or negative values

Creating an integer variable:

- `int number;`

Initializing an integer variable:

- `int number = 10;`



Real Numbers

Rational $\frac{5}{3}$ 0.63 $0.01\overline{2}$

Irrational

Integers {..., -2, -1, 0, 1, 2, ...}

$\sqrt{3}$ π 0.10010001...

Whole {0, 1, 2, 3, ...}

Natural {1, 2, 3, ...}

Doubles [double]

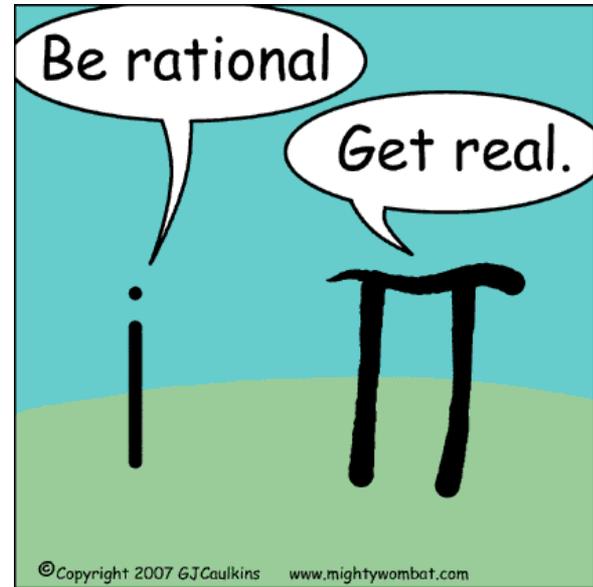
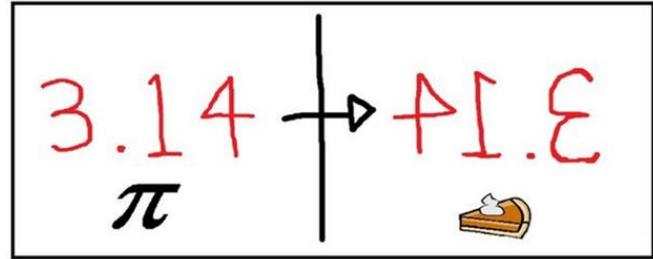
- Irrational or decimal numbers
- Can be positive or negative values

Creating a double variable:

- double number;

Initializing a double variable:

- double pi = 3.14;



Characters [char]

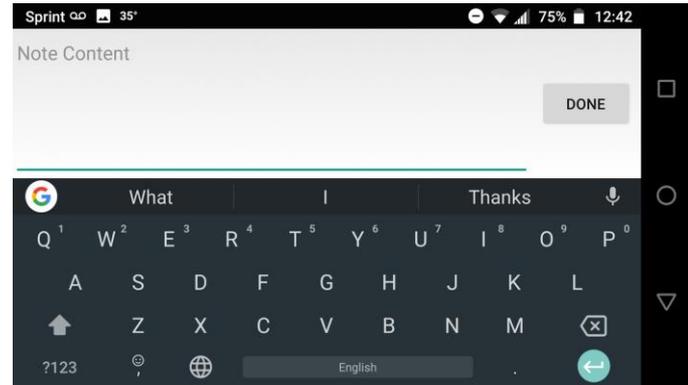
- Same as characters on your phone or computer
- Each individual key is a character

Creating a character variable:

- `char dollarSign;`

Initializing a character variable:

- `char dollarSign = '$';`
- Note that we use single quote ('')



Strings [String]

- A “String” of characters
- Can be words or even sentences

Creating a String variable:

- String greeting;

Initializing a String variable:

- String greeting = “hello”;
- Note that we use double quote (“ ”)





Boolean [bool]

- Boolean variables can only be true or false
- This corresponds well to ON/OFF

Creating a String variable:

- `bool b;`

Initializing a String variable:

- `bool b = false;`



Conditional Statements

If Statement

```
if(boolean_expression) {  
    statement(s);  
}
```

```
4  
5 public static void main(String[] args) {  
6     int i = 9;  
7  
8     if (i < 5) {  
9         System.out.print("The number is smaller than five");  
10    }  
11    if (i > 5) {  
12        System.out.print("The number is bigger than five");  
13    }  
14  
15 }  
16  
17 }  
18
```

When ran this code is ran, it prints:

“The number is bigger than five”

If-Else Statement

```
if(boolean_expression) {  
    statement(s);  
} else {  
    statement(s);  
}
```

- Like the if but with and else added to the end
- When if is false the else statements runs

```
1  
2 public class HeHe {  
3  
4     public static void main(String[] args) {  
5  
6         int i = 3;  
7  
8         if(i < 5) {  
9             System.out.println("i is less than 5");  
10        }  
11        else {  
12            System.out.println("i is greater than or equal to 5");  
13        }  
14    }  
15 }  
16  
17 }  
18 }
```

When ran this code is ran, it prints:

i is less than 5

Else-If Statement

```
if(boolean_expression) {  
    statement(s);  
} else if (boolean_expression) {  
    statement(s);  
}
```

- Like the if but with and else-if added to the end
- When if is false the else-if statements checks its condition

```
1  
2 public class HeHe {  
3  
4     public static void main(String[] args) {  
5  
6         int i = 7;  
7  
8         if(i < 5) {  
9             System.out.println("i is less than 5");  
10        }  
11        else if(i < 10 && i >= 5) {  
12            System.out.println("i is between 4 and 10");  
13        }  
14        else {  
15            System.out.println("i is greater than 9");  
16        }  
17    }  
18 }  
19  
20 }  
21
```

When ran this code is ran, it prints:

i is between 4 and 10

Loops





While Loop

```
while(condition) {  
    statement(s);  
}
```

- States in a loop as long as the condition is true.
- Checks at condition the beginning of the loop

```
3 public class firstpart {  
4  
5     public static void main(String[] args) {  
6         int i = 0;  
7         while (i < 5) {  
8             System.out.println(i);  
9             i++;  
10        }  
11    }  
12 }  
13  
14
```

When ran this code is ran, it prints:

0
1
2
3
4

Do-While Loop

```
do {  
    statement(s);  
} while( condition );
```

- Very similar to the While loop, but will always do the statements at least once
- States in a loop as long as the condition is true.
- Checks at condition the end of the loop

```
1  
2 public class HeHe {  
3  
4     public static void main(String[] args) {  
5  
6         int i = 0;  
7  
8         do {  
9             System.out.println("Hello " + i);  
10            i++;  
11        } while (i < 5);  
12  
13    }  
14  
15 }  
16
```

When ran this code is ran, it prints:

```
Hello 0  
Hello 1  
Hello 2  
Hello 3  
Hello 4
```

For Loop

Loops a set number of times set by the variable in the first statement

```
for ( declare; condition; increment/decrement )  
{  
    statement(s);  
}
```

For value $i = 0$,
When i is less than 4,
Add 1 to i after every loop,

```
1  
2 public class HeHe {  
3  
4     public static void main(String[] args) {  
5  
6         for(int i = 0; i < 4; i++) {  
7             System.out.println("test");  
8         }  
9  
10    }  
11  
12 }  
13
```

When Ran this code is ran it prints:

test

test

test

test

Activities





Activity 1

Add/Change this code to create a variable of your favorite food and print it 7 times.

Do this two different ways using a for loop.

```
1
2 public class HeHe {
3
4 public static void main(String[] args) {
5
6     for(int i = 0; i < 4; i++) {
7         System.out.println("test");
8     }
9
10 }
11
12 }
13
```



Activity 2

Create a Java program using an if-statement to compare 2 integers of your choice, then print those integers with the comparison made.

Output Example:

```
myInt1 = 5
```

```
myInt2 = 2
```

```
myInt1 is larger than myInt2
```



Activity

Veteran Coders:

Create a calculator that asks whether you want to add or multiply 2 user inputted numbers together and prints the output to the console as shown below.

Output Example (in console):

Addition of number1 and number2: 'answer'



Last Activity

Play around! Create whatever you want and
learn something new!