

Lecture 2

Introduction to programming

Review about compilation and interpretation

In languages Java,C,C++ first you have to compile your source file and after compilation it generates some intermediate file(like .class) in Java. And then in order to execute(to see the output) your program you have to run that intermediate file.

In languages like JavaScript and Python no intermediate files are generated, these compilers automatically converts your program into machine level language and gives you the output.

Let see a demo on how Java

At first you compile your source file and if the source file has no errors, then Java compiler will create an intermediate file(with .class extension), and then you run these .class file in order to get your output.

For the students who heard “Java is portable” or “Java is platform independent” see me in brake

Review of math operators

We have seen different operators like $+$, $-$, $*$, $\%$, $/$

One important thing knowing the difference between $\%$ and $/$.

$\%$ - Gives the remainder

$/$ - Gives Quotient

Difference between % and /

% - Gives remainder.

$$\begin{array}{r} 2 \overline{) 5} \\ \underline{4} \\ 1 \end{array}$$

In above case, `console.log(5%2);` Output is 1.

What values a variable takes

Let's talk about what a variable is, when we say `var amount = 10;`

The value 10 is stored on RAM, and whenever you say `amount` in your code, it shows the value.

```
var amount = 10;
```

```
amount = amount + 20;
```

```
console.log(amount);
```

Output of the above program is 30.

Value stored in the RAM is updated.

What a variable can store

```
var abc = 10;
```

```
var x = 1.2
```

```
var y = true;
```

```
var c = false;
```

```
var x = "sample text";
```

true and false are represented as 1 and 0, inside the computer.

Comparisons

We know basic math relation operators:

$>$

$<$

$>=$

$<=$

$==$

Comparisons

Every programming language has to support these relation operators, And these comparisons results true or false.

Let's take a basic exam question, what get printed to the screen after executing

```
console.log(12<3);  
console.log(3==4);
```

Output:

true

false

if - else

```
var amount = 17;  
if (amount > 15) {  
    console.log("eat pizza");  
    amount = amount - 15;  
}  
if (amount > 5) {  
    console.log("eat candy");  
}
```

if else if else if else

```
var time = 19 ;  
if (time < 10) {  
    console.log("good morning");  
}  
else if (time < 15) {  
    console.log("good afternoon");  
}  
else if (time <= 19) {  
    console.log("good evening");  
}  
else {  
    console.log("good night");  
}
```

Below program checks, in what range z falls:

```
var z = 150;
if(z<=100){
    console.log("0 - 100");
}else if(z<=200){
    console.log("101 - 200");
}
else if(z<=300){
    console.log("200 - 300");
}
else {
    console.log(">300");
}
```

Program to find largest number among 3 numbers

```
var n1 = 12;  
var n2 = 13;  
var n3 = 1;  
  
if (n1>=n2)  
{  
    if(n1>=n3){  
        console.log("the largest number", n1);  
    }  
    else{  
        console.log("the largest number", n3);  
    }  
}  
else  
{  
    if(n2>=n3){  
        console.log("the largest number", n2);  
    }  
    else{  
        console.log("the largest number",n3);  
    }  
}
```