Java Placement Cource (DSA) notes

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Lecture 1

22.12.2022 Thursday

1 Introduction to Java Language

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1.2 Flowchart

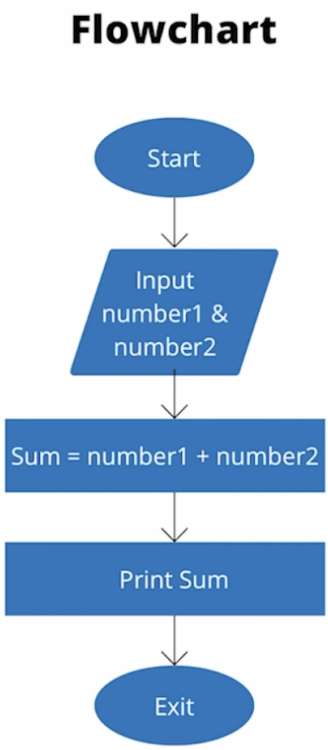

Figure 1: Flowchart

1.3 Psudocode

1. Start
2. Input 2 number
3. Calculate Sum = number1 + number2
4. Print Sum
5. Exit

1.4 Java Class 1

1.4.1 Installation

1. Java Development Kit (JDK)
2. Code Editor / IDE
   - VS Code
   - Intellij
   - Eclipse

1.4.2 First Code

- Extension -> .java

1.4.2.1 Hello World

```
class FirstClass {
    public static void main(String args[]) {
        System.out.println("Hello World");
    }
}
```

1.4.3 How is code running?

Figure 2: Java Development Kit (JDK)

1. Compilation

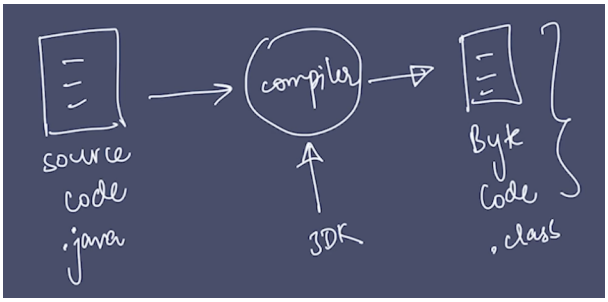

Figure 3: Java compilation

2. Execution

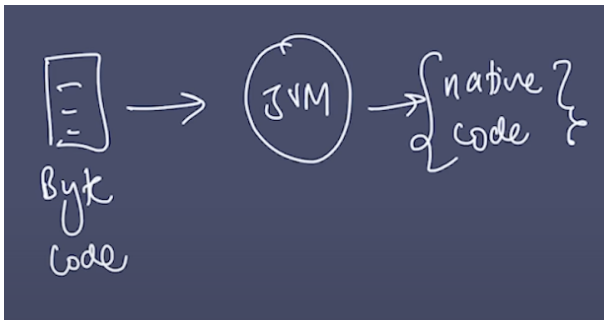

Figure 4: Java Execution

1.4.4 Code Components

1.4.4.1 Function

```
void main(){

}
```

1.4.4.2 Class

```
class Main{
    void main() {

    }
}
```

Lecture 2

22.12.2022 Thursday

2 Variables in Java | Input Output

2.1 Output

```
System.out.print("Hello World");
```

`Hello world` is the string which is printed.

- Use double quotes for strings

2.1.1 Boilerplate code

```
package com.apnacollege;

public class Main{
    public static void main(String[] args) {
        // Output
        System.out.print("Hello World");
    }
}
```

Here: - System -> class - print -> function

```
System.out.println("Hello world with java");
```

- print -> for output on the same line `System.out.print("Hello World");`
- println -> for output on the next line `System.out.println("Hello world with java");`
- "\n" -> `System.out.print("Hello World\n");`

2.1.2 Q. Print the pattern

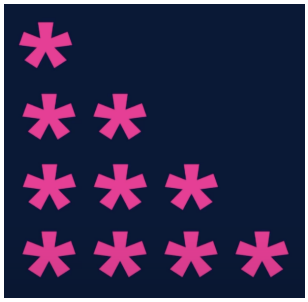

Figure 5: right triangle pattern

```
public class Main{
    public static void main(String[] args) {
        // Output
        System.out.println("*");
        System.out.println("**");
        System.out.println("***");
        System.out.println("****");
    }
}
```

2.2 Variables

```
Perimeter = 2 * (a + b)
```

here,

- 2 -> constant
- a&b -> variable

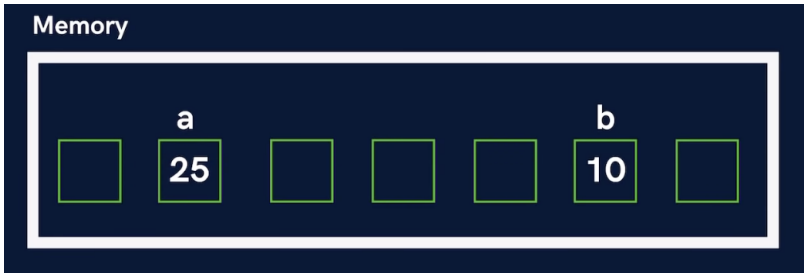

Figure 6: Variables in memory

```java
public class Main{
    public static void main(String[] args) {
        // Variables
        String name = "tony stark";
        int age = 48;
        double price = 23.25;
        int a = 25;
        int b = 1;

        b = 20;
        name = "ironman";
    }
}
```

2.3 Data Type

Java is a typed language. i.e; you need to tell the datatype.

2.3.1 Types of Datatypes

- Primitive
- Non-Primitive

Primitive	Non-Primitive
byte	String
short	Array
char	Class
boolean	Object
int	Interface
long	
float	
double	

2.3.2 Data Type sizes

Primitive	Size (in bytes)
byte	1
short	
char	2
boolean	1
int	4
long	8
float	4
double	8

Above sizes are for a 64-bit System

```java
public class Main {
    public static void main(String[] argss) {
        // Variables
        int a = 10;
        int b = 25;

        int sum = a + b;
        System.out.println(sum);

        int diff = b - a;
        System.out.println(diff);

        int mul = a * b;
        System.out.println(mul);

    }
}
```

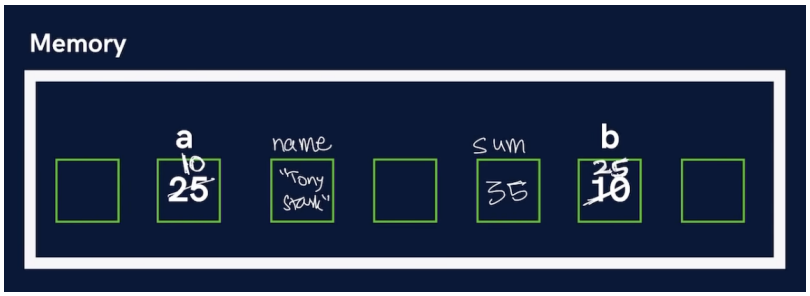

Figure 7: Memory allocation for the above program

2.4 Inputs in Java

```java
import java.util.*;

public class Main {
    public static void main(String[] args) {
        // Input
```

```
        Scanner sc = new Scanner(System.in);
        String name = sc.next(); // next() -> for next token ie; next word
        String name1 = sc.nextLine(); // nextLine() -> for taking a sentence as Input
        // Similarly
        // nextInt()
        // nextFloat()
        System.out.println(name);
    }
}
```

2.5 Q. Take 2 variables 'a' & 'b' and print their sum.

```
import java.util.*;

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int a = sc.nextInt();
        int b = sc.nextInt();
        int sum = a + b;
        System.out.println(sum);
    }
}
```