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Object Oriented Programming Through Java

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Syllabus

OOPs concepts, POP and OOP, Benefits of OOP, Objects, Classes and Methods, Constructors, Operator and Function overloading, Inheritance and Polymorphism, Multithreading and Exception handling, Programming in Java – JAVA API, System package, Naming conventions, Creating and accessing packages, Threads in Java, Thread exception, Files in Java, String classes, Applet programming.

Path way to OOP

- Mother tongue of computer is Machine Language

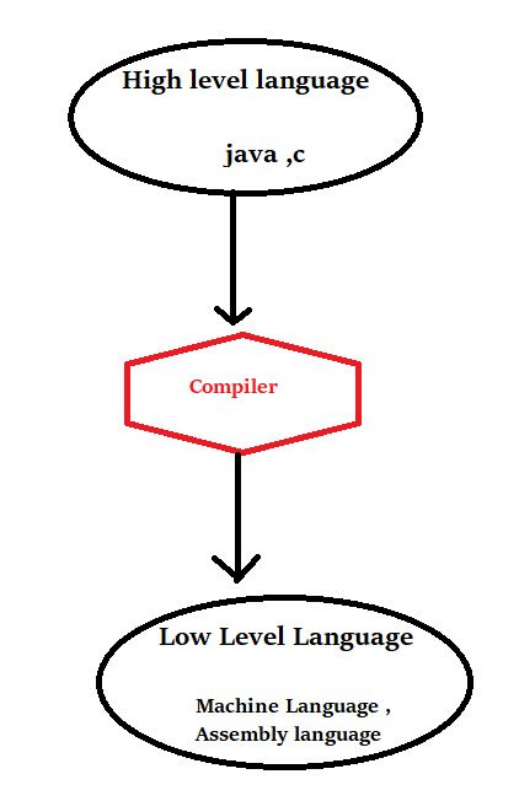
```
10101001110011010101
10100100110010010101
11111000101010101010
01111000000111111111
```

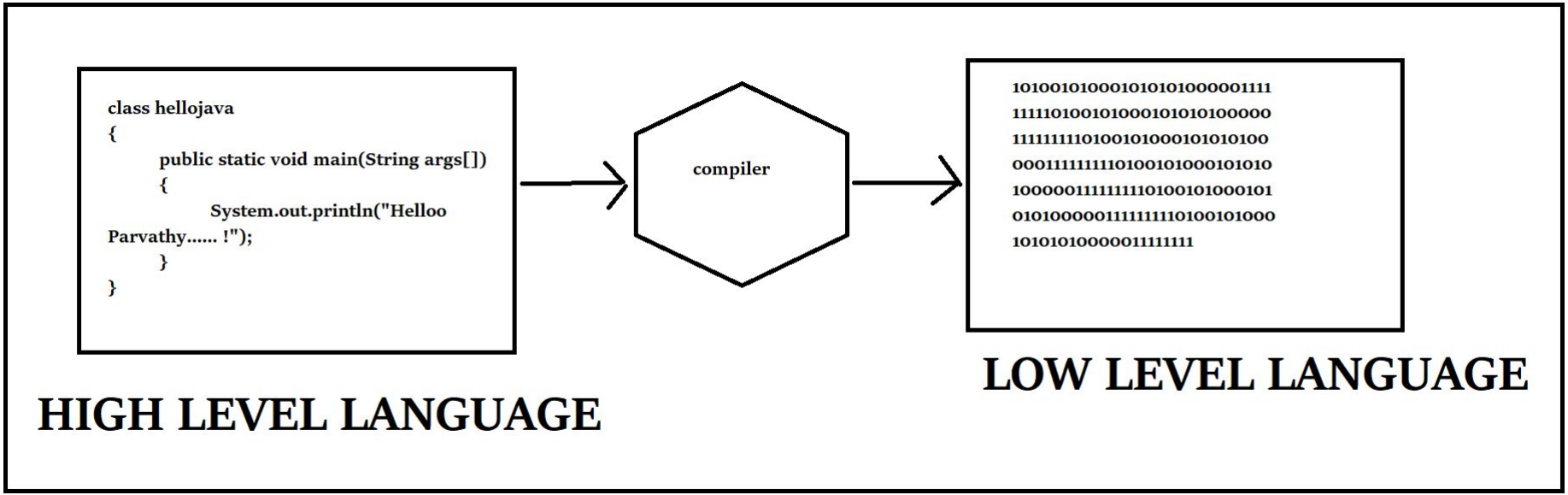
- Then came Assembly language : An Assembler converts the code to Machine language

```
Assembly Language

SUB AX,BX
MOV CX,AX
MOV DX,0
```

High level Language vs Low Level Language




class hellojava
{
public static void main(String args[])
{
System.out.println("Helloo Parvathy..... !");
}
}
compiler
10100101000101010100000111
11111010010100010101010000
11111111101001010001010100
00011111111110100101000101010
10000011111111101001010001
01010000011111111101001010
10101010000011111111
HIGH LEVEL LANGUAGE
LOW LEVEL LANGUAGE

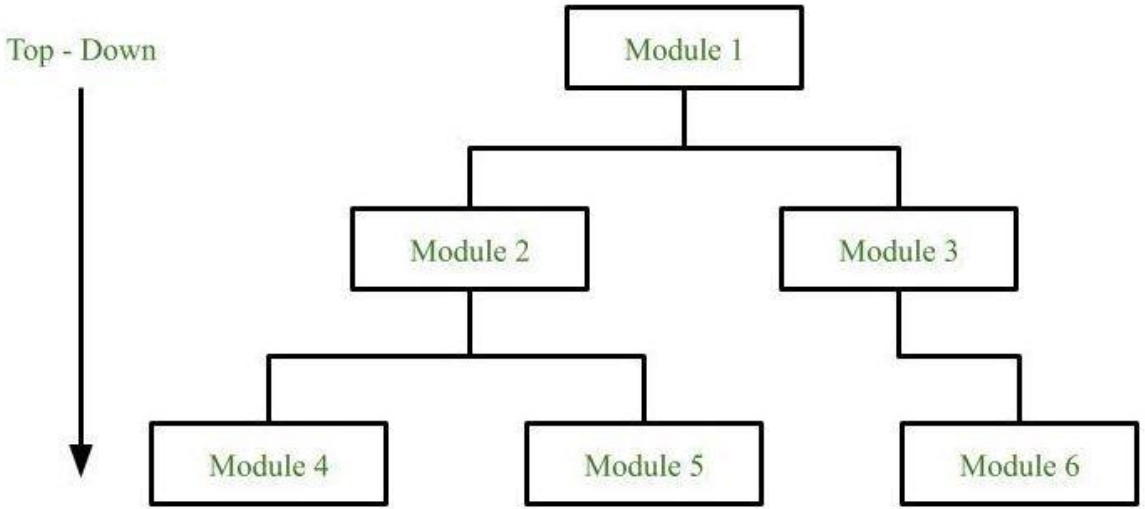
- Go to statement helps to jump from one line of code to other
- As the complexity of the program increases there arise a problem called Spaghetti Code problem

-L1
-L2
    if()goto L4
-L3
-L4
    if() goto L6
-L5
-L6
    if() goto L2
-L7
-L8

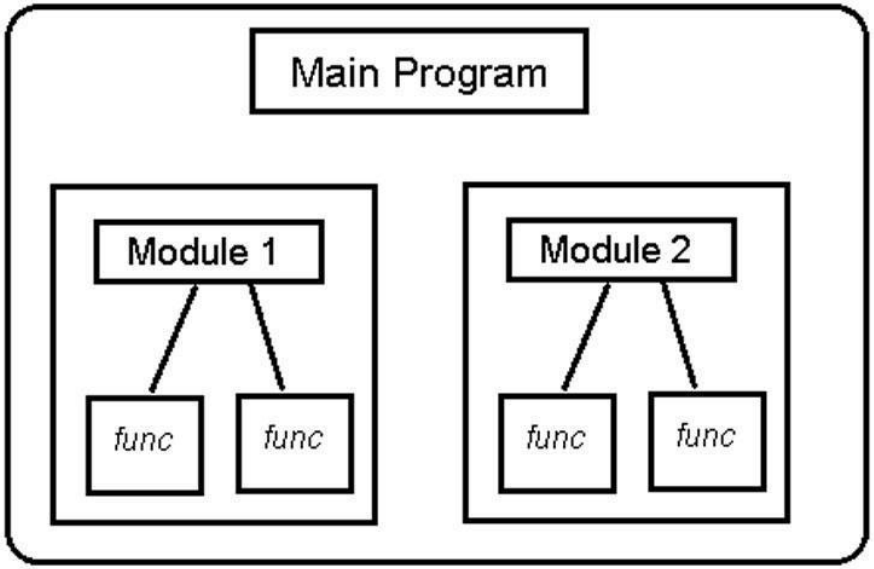
Structured Programming

- Developed to remove the Spaghetti Code problem of goto statement
- It deals with
  - Top Down Analysis
  - Modular Programming
  - Structured Coding
    - Sequence
    - Repetition
    - Decision

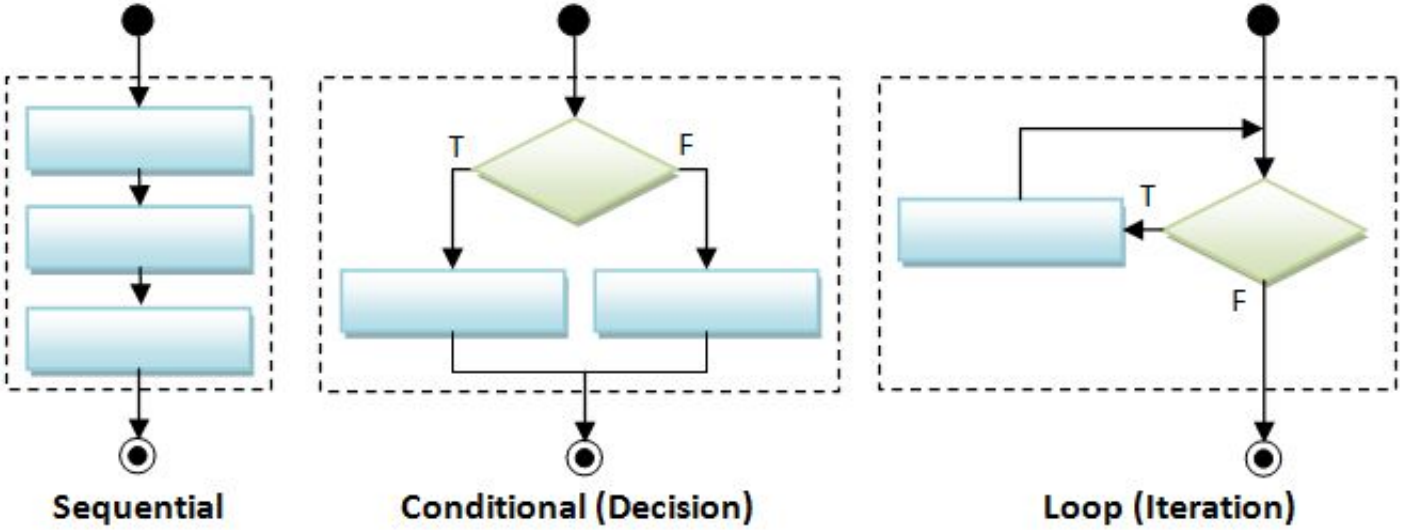
Top Down Analysis



Modular Programming

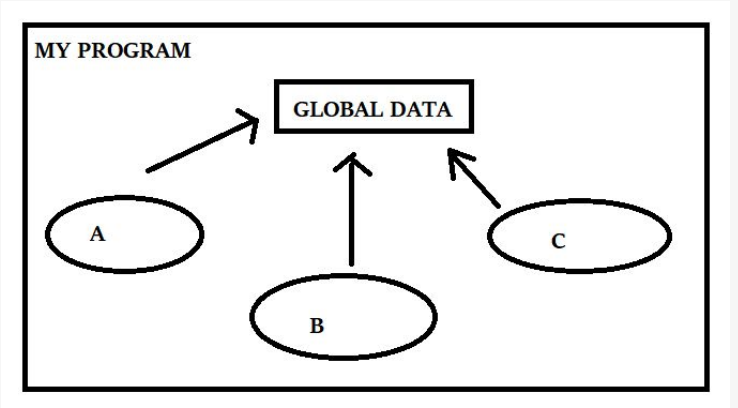


Structured Coding



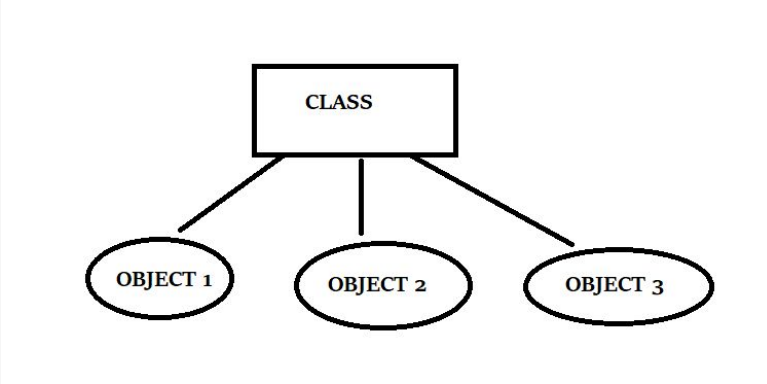
Procedural Programming

- Supports structural programming.
- Order of the code matters
- Give importance to task not to data.
- Security issues can occur due to the usage of global variables.
- Functions are not reusable.



Object Oriented Programming

- It can imitates real world problem
- Collection of Classes and its objects
- Give importance to data , hence the security is high.
- Reusable code structure



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POP vs OOP

	PROCEDURAL PROGRAMMING	OBJECT ORIENTED PROGRAMMING
1	Follows Top Down Approach	Follows Bottom Up Approach
2	Task Oriented programming	Data Oriented Programming
3	No Data hiding	Data hiding techniques are implemented
4	No Access Specifiers	Public ,Private & protected access Specifiers

	PROCEDURAL PROGRAMMING	OBJECT ORIENTED PROGRAMMING
5	Divided into functions	Divided on Object basis
6	Data and functions are separate	Data and function are encapsulated
7	Limited code reusability	Easy to reuse and modify the code
8	Interaction with program is via direct function calls.	Interaction with program is via functions defined in the class only.

	PROCEDURAL PROGRAMMING	OBJECT ORIENTED PROGRAMMING
9	No inheritance	Use inheritance
10	FORTRAN, C	C++ , Java

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Benefits of OOP

1. Reusability : Using class & object ,through inheritance
2. Modularity : Readjusting the code and polish it
3. Flexibility : Personalize the object by adding and removing features
4. Effective problem solving : Using Bottom up approach

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Thank You