

# Lecture 29

Java



# QUIZ

قَالَ رَبِّ اشْرَحْ لِي صَدْرِي ۝  
﴿٢٥﴾

[فَالَّذِي نَسِيَ كَهُولَ دَعَى رَبَّهُ أَشْرَحَ لَهُ مَنْ يَرَى لِي صَدْرِي مِيرَا سِينَهُ]

وَيَسِّرْ لِي آمْرِي ۝  
﴿٢٦﴾

[وَيَسِّرْ لَهُ آسَانَ كَهُولَ دَعَى لَيْهُ مَنْ يَرَى لِي آمْرِي مِيرَا كَامَ]

وَاحْلُلْ عُقْدَةً مِنْ لَسَانِي ۝  
﴿٢٧﴾

[وَاحْلُلْ لَهُ كَهُولَ دَعَى عُقْدَةً گَرَهُ مِنْ سَيِّدِي سَيِّدِي زَبَانَ]

يَفْقَهُوا قَوْلِي ۝  
﴿٢٨﴾

[يَفْقَهُوا وَهُوَ سَمْجَه سَكِينَ [قَوْلِي مِيرِي بَاتَ]

# 4 QUESTIONS / FEEDBACK / CONCERNS



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# SE SECA SLIDE OF FAME

5



NO ONE  
WEEK - 1



Muhammad Daniyal  
Hammad (BSSE23046)  
WEEK - 2



Syed Hashim Abbas  
(BSSE23084)  
WEEK - 3



Umar Ahmad  
(BSSE23032)  
WEEK - 4



Umar Ahmad  
(BSSE23032)  
WEEK - 5



Fatima Noorulain  
BSSE23003  
WEEK - 6



Umar Ahmad  
(BSSE23032)  
WEEK - 7



YOUR NAME  
WEEK - 8



YOUR NAME  
WEEK - 9



YOUR NAME  
WEEK - 10



YOUR NAME  
WEEK - 11



YOUR NAME  
WEEK - 12



YOUR NAME  
WEEK - 13



YOUR NAME  
WEEK - 14



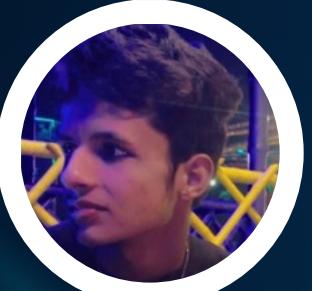
YOUR NAME  
WEEK - 15

# SE SEC B SLIDE OF FAME

6



Muhammad Mukarram  
BSSE23029  
WEEK - 1



Muhammad Abdullah  
(BSSE23087)  
WEEK - 2



Muhammad Abdullah  
(BSSE23087)  
WEEK - 3



Fasiha Rohail  
(BSSE23041)  
WEEK - 4



Muhammad Abdullah  
(BSSE23087)  
WEEK - 5



Hazira Azam  
BSSE23019  
WEEK - 6



Jamshaid Ahmed  
BSSE23012  
WEEK - 7



YOUR NAME  
WEEK - 8



YOUR NAME  
WEEK - 9



YOUR NAME  
WEEK - 10



YOUR NAME  
WEEK - 11



YOUR NAME  
WEEK - 12



YOUR NAME  
WEEK - 13



YOUR NAME  
WEEK - 14



YOUR NAME  
WEEK - 15

# RECAP

GitHub

Tools (Cygwin, IDE, GitHub)

Approach towards a word problem

Flowcharts

Flowcharts Advantages & Disadvantages

Algorithms

Pseudocode

Numbers Systems (Decimal, Binary, Octal & Hexadecimal)

Ten's Complement

Twos Complement

main function

Stream in and stream out operators

if else

Functions

Data Types

Arithmetic Operators

Relational Operators

Loops (While, for , do while)

Nested Loops

Switch cases

# RECAP

Function Overloading

Scope of variables

Function Prototype and Definition

Default Value in parameters of functions

Parameters by value vs Parameters by Reference

Recursion

Arrays

2D Arrays / Multi Dimensional Arrays

Pointers

Structs

Filing

DMA

Templates

Static Variables

Python basic mapping with C++

# C++ vs Java

## C++

- C++ is a pre-compiled programming language and doesn't need any interpreter during compilation.
- It is a low-level language.
- C++ doesn't support garbage collection.
- C++ is faster in speed as compared to python.

## Java

- Java is both compiled and interpreted.
- It is high-level language.
- It supports garbage collection.
- It is slower since it also uses interpreter



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# Basic Program

C++

```
#include <iostream>
using namespace std;

int main ()
{
    cout << "Hello World" << endl;
    return 0;
}
```

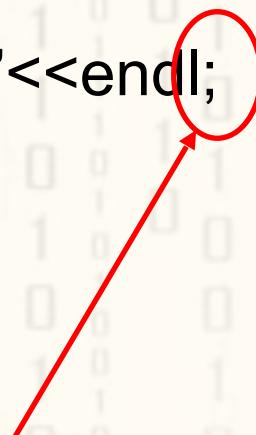
Java

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

# Display

C++

```
cout << "hello world" << endl;
```



Java

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



# Display

C++

```
cout << "hello world";
```

Java

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



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# Comments

C++

```
//This is a comment for single line  
/*  
This is a comment  
written in  
more than just one line  
*/
```

Java

```
//This is a comment for single line  
/*  
This is a comment  
written in  
more than just one line  
*/
```

# Variables

C++

```
int a = 0;  
  
float b = 2.2f;  
  
bool flag = true;  
  
string name = "noman ali";  
  
char c = 'c';
```

Java

```
int a = 0;  
  
float b = 2.2f;  
  
boolean flag = true;  
  
String name = "noman ali";  
  
char myLetter = 'D';
```



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# Input from user

C++

```
cin >> x;  
  
cout<<"Enter your name:";  
  
cin >> x
```

Java

```
import java.util.Scanner;  
  
Scanner sc= new Scanner(System.in);  
  
int a= sc.nextInt();
```



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# Other Operators are same as C++

Operator	Name
<code>==</code>	<b>Equal</b>
<code>!=</code>	<b>Not equal</b>
<code>&gt;</code>	<b>Greater than</b>
<code>&lt;</code>	<b>Less than</b>
<code>&gt;=</code>	<b>Greater than or equal to</b>
<code>&lt;=</code>	<b>Less than or equal to</b>

# Other Operators are same as C++

Operator	Example
=	x=5
+=	x+=2
-=	x-=3
*=	x*=2
/=	x/=3
%	x%y

# Operators

C++

&&

||

!

Java

&&

||

!



# Arrays

C++

```
int cars[3] = [2, 10, 0]
```

```
string cars[3] = ["Ford", "Volvo",
"BMW"]
```

Java

```
int[] myNum = {10, 20, 30, 40};
```

```
String[] cars = {"Volvo", "BMW",
"Ford", "Mazda"};
```



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# What do you guys hate about C++. Is it pointers?

Java does not have it.



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# If else statement

C++

```
if (x< 2){  
    cout << "x is less than 2";  
}  
  
else {  
    cout << "x is not less than 2";  
}
```

Java

```
if (x< 2){  
    System.out.print("x is less than  
2");  
}  
  
else {  
    System.out.print("x is not less than 2");  
}
```



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# If else if statement

C++

```
if (x< 2){  
    cout << "x is less than 2";  
}  
  
else if(x> 2){  
    cout << "x is not less than 2";  
}
```

Java

```
int time = 22;  
if (time < 10) {  
    System.out.println("Good morning.");  
} else if (time < 20) {  
    System.out.println("Good day.");  
} else {  
    System.out.println("Good evening.");  
}
```



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```
variable = (condition) ? expressionTrue : expressionFalse;
```

# While loop

```
C++  
int x = 4;  
while (x > 2){  
  
    cout << x -;  
  
}
```

```
Java  
int i = 0;  
while (i < 5) {  
    System.out.println(i);  
    i++;  
}
```



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# for loop

C++

```
for(int i =0; i< 10; i++){  
    cout << i;  
}
```

Java

```
for (int i = 0; i < 5; i++) {  
    System.out.println(i);  
}
```



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## for loop Increment by 2

C++

```
for(int i =0; i< 10; i+=2){  
    cout << i;  
}
```

Java

```
for (int i = 0; i <= 10; i = i + 2) {  
    System.out.println(i);  
}
```



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C++

```
// Iterating over whole array
std::vector<int> v = {0, 1, 2, 3, 4, 5};
for (auto i : v)
    std::cout << i << ' ';
std::cout << '\n';
```



C++

```
// the initializer may be a braced-init-list
for (int n : {0, 1, 2, 3, 4, 5})
    std::cout << n << ' ';
std::cout << '\n';
```



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C++

```
// Iterating over array
int a[] = {0, 1, 2, 3, 4, 5};
for (int n : a)
    std::cout << n << ' ';
std::cout << '\n';
```



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C++

```
// Printing keys and values of a map
std::map <int, int> MAP({{1, 1}, {2, 2}, {3, 3}});
for (auto i : MAP)
    std::cout << '{' << i.first << ", "
                  << i.second << "}\n";
```



C++

```
// Printing string characters
std::string str = "Geeks";
for (char c : str)
    std::cout << c << ' ';
std::cout << '\n';
```



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# for loop with Arrays

C++

```
int cars[3] = [2, 10, 0]  
  
for(int i =0; i< 3; i++){  
  
cout << cars[i];  
  
}
```

Java

```
String[] cars = {"Volvo", "BMW",  
"Ford", "Mazda"};  
  
for (String i : cars) {  
    System.out.println(i);  
}
```



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# Function

C++

```
int fun(int count){  
  
    cout << "I have "<<count <<"pens";  
  
    count++;  
  
    return count;  
  
}
```

Java

```
public class Main {  
    void fun( int count) {  
        // code to be executed  
    }  
    public static void main(String[] args) {  
        fun(2);  
    }  
}
```



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