

BCA – Part III
JAVA PROGRAMMING LANGUAGE

Java API classes / java library :-

all the classes under java programming language is packed up into a higher container known as java package. Package is actually collection of classes . java has two important package:-

1. Java package :- it contain all basic classes necessary for java programming some important package under java is
 - a. Java.lang:- it is default subpackage i.e package into java package provide basic class required for language and their component, automatically added in our source code during compilation.
 - b. Java.io-> this is the subpackage under java package provide , classes required for input / output in our program. Stream classes like FileInputStream, FileOutputStream. Etc
 - c. Java.awt :- this is the subpackage under java package provide Graphics and window application development classes . like Button, ckeckBox, Choice, Component, Graphics, menu,Panel,TextArea,TextField etc.

- d. Java.applet:- this is the subpackage provide classes for binding java classes with html to develop internet applications. Applet, AppletContext, AppletStub, AudioClip is the important classes under Java.applet.
- e. Java.util :- this subpackage contain utility classes like Date, Dictionary ,Random, Vector,Stack etc.
- f. Java.net :- this is the ubpackage in java that provide classes for network application or network programming with java . it include Socket, ServerSocket, DatagramPacket, DatagramSocket, URL, URLConnection. Etc.

Naming convention of classes and methods in java:- the basic naming convention of classes and methods in java is that

1. Class of the java started with first Capital letter of each word in the class name as
InputStreamReader.
2. Method name in java is stated with small letter of first word and rest word have first letter capital . as
dataInput(), dataOutput().

CLASSPATH :- classpath is the operating system environment variables that provide option to set the compiler directory path setting option. So, that java program written in any editor of compiler and translate and execute.

We can set the class path ourself.

```
CLASSPATH = "C:\JAVA\BIN" ; "C:\JAVA\ ";
```

Bin is the directory under java folder (software folder of java) that contain all the java compiler file discussed above.

Or Set Path = "C:\JAVA\BIN" ; C:\JAVA\ " ; in Operating system environment variables.

Java Character Set :- the smallest unit in any programming language is character. Java support uni-code character set which is 16-bit long. Means that java programming language have capability to process 65535 different character. Therefore, most of language of the world can be translated through java program.

Identifier in java :- 1. java identifier may be any alphanumeric letter combinations with underscore, dollar sign character.

2. But identifier always start with letter.

3. Upper case and lower case character are different.

4. they can of any length.

5. identifier must be meaningful, short, enough to be typed and descriptive.

6. Names of all public methods and instances variables starts with leading lower case letter. when more than one word present in name then first letter of each name has capital letter.

7. All classes and interface start with capital letter and if more than one word present then each word has leading capital letter

8. private and local variables have small letters. Same principle adopted with constant.

Program format of java program :- java program is always written in class under a main method . the class having main method is known as executable class. Java program is always written in any editor with the extension name “.java “. Here name of the program is the same as the name of executable class name .

Format :

```
Import java. io.*; // represent all classes
```

```
Import java.util.Scanner;
```

```
.
```

```
./ global classes or interface definition.
```

```
.
```

```

public class name_of_executable_class_name
{ local variables .....;
return type methodname (argument.....)
{.
.
.
}

```

```

public static void main(String []args)
{ local variable ;

```

Code of the program

```

.
.
.}
}

```

1. Import is the keyword that tells the compile to add the library classes in program for further programming. More than on classes can be added by “*” wild card character.

Classes from more than one package can add with separate import statement.

2. `Public static void main (String [] args)` tells the compiler , main is the public function of the class, but static in memory i.e no other copy of main in memory may exist at any point of time of program execution. Void represent function should not return any value.

`String [] args` tells the compiler `main ()` function can get command line argument as list of string. By default they do not get any argument.

Compilation of java program :- in command line option , we can compile the java file with “`javac`” Command.

Syntax:- `c:\> javac filename.java`

`Filename.class` → byte code file.

Running the java program :-

we can run the java program file only if their byte code present in the source directory. We run the java program by “`java`” command.

Syntax:- `java filename`

Note: java program may be written in any editor having filename as “`javaprogramfile.java`”.

Output statement in java :-

Java.lang is the package in java that provide all the basic classes for creating java program. This package automatically added in java program by the compile.

This package provide a package "System" that java a class "out" which is used to provide output statement.

System.out →

class have two basic method to display output on the screen

System.out.print() ->

this method is used to display data and message on the screen.

Syntax:-

```
System.out.print(" message " + data + " message"+data);
```

Here, message and data is separated by "+" operator which work as concatenation operator.

System.out.println()-

this method get newline after printing the message and data .

Syntax:- System.out.println("message" + data);

"System.in" →

It is the input class in java that act as an input buffer and provide method to read a single character in java .

System.in.read()-

this method read a character from keyboard and return.

```
char c =(char) System.in.read();
```

-----X-----