Java means DURGA SOFT..

CORE JAVA

Material

Java™

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www.durgasoft.com Ph: 9246212143 ,8096969696

Steps To Design First Java Application:

1.Install java Software

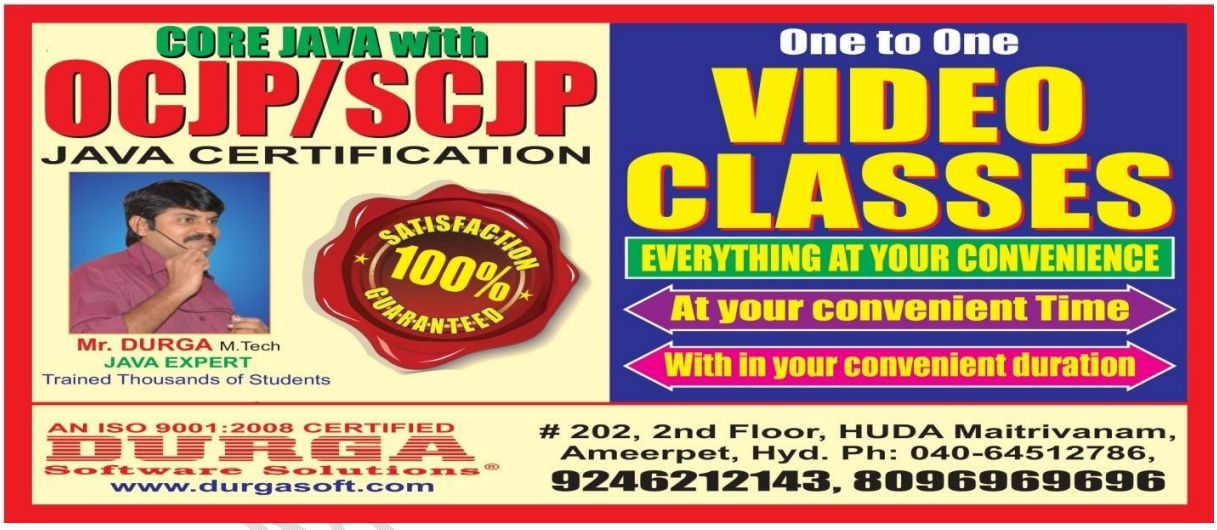
2.Select Java Editor

3.Write Java Program

4.Save java File

5.Compile JAVA File

6.Execute Java Application



1.Install JAVA Software

2.Download jdk-7-windows-i586.exe file from Internet

3.Double Click on jdk-7-windows-i586.exe file.

4.Click on "Yes" button

5.Click on "Next" button

6.Change "JDK" installation location from "c:\program Files\java\JDK1.7.0" to "c:\java\jdk1.7.0"

by click on "Change" button

7.Click on "Next" Button

8.Change "JRE" installation location from "c:\program Files\java\JDK1.7.0" to "c:\java\jdk1.7.0"by click on "Change" button

9.Click on "Next" Button

10.Click on "Finish" button

After installation of JDK and JRE software's as part of Java installation process we have to set

"C:\java\jdk1.7.0\bin" location to "path" environment variable

To set "path" environment variable temporarily we have to use the following command on command prompt.

set path=c:\java\jdk1.7.0\bin;

The above command is valid upto the present command prompt.we want to set "path" environment variable permanently,we have to use the following procedure.

a)Right click on Computer[Desktop icon]

b)Select "properties"[Last option]

c)click on "Advanced System settings"[in Windows7 and above]

d)click on Advanced[By default it is selected]

e)Click on "Environment Variables" button

f)Click on "New" button in User Variables section

g)Provide variable name and variable value

variable name:path

variable value:c:\java\jdk1.7.0

h)Click on "OK" button

i)Click on "OK" button

j)Click on "OK" button

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If we want to switch one version of java to another version of java in a simplified way then we have to use batch files with the following steps.

a)Take a normal text file

b)Provide "path" command

c)Save text file with ".bat" extension

d)open command prompt,go to the batch files location,type batch file name and click on enter button

java6.bat

```
set path=c:\java\jdk1.6.0_11\bin;
```

java7.bat

```
set path=c:\java\jdk1.7.0\bin;
```

on command prompt

```
d:\java7>java6.bat ----> enter button
```

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Select Java Editor:

Editor is a software or tool,it will provide very good environment to type and save programs.

Ex:NotePad,EditPlus,NotePad++.....

Note:Editors are not suggestible or not sufficient to design real time projects,IDEs are suggestable to design real time projects.

Ex:Eclipse,MyEclipse,NetBeans,JDeveloper.....

Write JAVA Program:

In general,to design java programme some predefined library

provided by JAVA API[Application programming Interface].

4.Save JAVA File:

To save java file,we have to follow the following two rules and regulations.

1.If any public class,abstract class,interface and enum is identified in java file then we must save that java file with public element name only,if we violate this condition then complier will raise an error.

2.I f no element is public in java file then it is possible to save java file with any name like abc.java,xyz.java but it is suggestible to save java file with main() method class name

NOTE:All the java files are able to allow atmost one public element[class,abstract class,interface,enum] NO java file is able to allow more than one public element.

abc.java

```
class A{

}
```

Status:Valid

abc.java

```
class B{

public static void main(String[] args){


}}
```

Status:valid,but not suggestable

abc.java

```
public class Abc{

public static void main(String args[]){

}}
```

Status:invalid

A.java

```
public class A{
```

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```
}


class Test{
public static void main(String args[]){
}
```

Status: Valid

A.java:

```
public class A{
}
public class B{
}}
```

Status: Invalid

A.java:

```
public class A{
public static void main(String args[]){
}}
public class B{
}
```

Status: InValid

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Compile JAVA File:

1.The main purpose of compiling JAVA file is to convert JAVA programme from HighLevelRepresentation to LowLevelRepresentation.

2.To Check compilation errors.

To compile JAVA file,we have to use the following command on command prompt from the location where JAVA File is Saved

javac File_Name.java

Ex:

d:\java7>javac FirstApp.java

If we use the above command on command prompt then operating System will perform the following actions.

1.Operating System will take "javac" command from command prompt and search for it at its predefined commands lists and at the locations referred by "path" environment variable.

2.If the required "javac" program is not available at the above two locations then operating System will give a message on command prompt.

"javac can not be recognized as an internal command,external command or operable program and a batch file"

NOTE:To make available all JDK tools like javac,java...to the operating System we have to set "path" environment variable to "c:\java\jdk1.7.0\bin" location.

3.If the required "javac" program is identified at "c:\java\jdk1.7.0\bin" location through "path" environment variable then operating System will execute "javac" program and activate "Java Compiler" software.

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4.When Java Complier Software is activated then Java Complier will perform the following tasks.

a)Compiler will take java File name from command prompt.

b)Compiler will search java file at current location.

c)If the required java file is not available at current location then compiler will provide the following message on command prompt.

javac : file not found : FirstApp.java

d)If the required java file is available at current location then compiler will start compilation from starting point to ending point of the java file.

e)In compilation process,if any syntax violations are identified then compiler will generate error messages on command prompt.

f)In compilation process,if no syntax errors are identified then compiler will generate .class files at the same current location.

NOTE:Generating no of .class files is completely depending on the no of classes,no of abstract classes,no of interfaces,no of enums and no of inner classes which we used in the present java File

If we want to compile java file from current location and if we want to send the generated .class Files to some other target location then we have to use the following command on command prompt

javac -d target_location File_Name.java

Ex:

d:\java7>javac -d c:\abc FirstApp.java

If we use package declaration statement in java file and if we want to store the generated .class files by creating directory structure w.r.t the package name in compilation process then we have to use

"-d" option along with "javac" command.

D:\java7\Employee.java

```
package com.durgasoft.core;

public class Employee{

}
```

D:\java7>javac -d c:\abc Employee.java

Compiler will compile Employee.java File from "D:\java7" location and it will generate Employee.class file at "C:\abc" target location by creating directory structure w.r.t the package name

"com.durgasoft.core".

If we want to compile all the java files which are available at current location then we have to use the following command.

D:\java7>javac *.java

D:\java7>javac -d C:\abc *.java

If we want to compile all the java files which are prefixed with a word then we have to use the following command.

D:\java7>javac Employee*.java

D:\java7>javac -d C:\abc Employee*.java

If we want to compile all the java files which are postfixed with a common word then we have to use the following command.

D:\java7>javac *Address.java

D:\java7>javac -d C:\abc *Address.java

If we want to compile all the java Files which contain particular word then we have to use the following command

D:\java7>javac *Account*.java

D:\java7>javac -d C:\abc *Account*.java

Execute JAVA Application:

If we want to execute java program then we have to use the following command prompt.

java Main_Class_Name

Ex:

d:\java7>java FirstApp

If we use the above command on command prompt then operating System will execute "java" operable program at "C:\java\jdk1.7.0\bin",with this,JVM software will be activated and JVM will perform the following actions.

1.JVM will take Main_Class name from command prompt.

2.JVM will search for Main_Class at current location,at Java predefined library and at the locations referred by "classpath" environment variable.

3.If the required Main_Class .class file is not available at all the above locations then JVM will provide the following.

JAVA6:java.lang.NoClassDefFoundError:FirstApp

JAVA7:Error:Could not find or load main class FirstApp

NOTE:If main class .class file is available at some other location then to make available main class.class file to JVM we have to set "classpath" environment varaible.

D:\java7>set classpath=E:\XYZ;

4.If the required main class .class file is available at either of the above locations then JVM will load main class bytecode to the memory by using "Class Loaders".

5.After loading main class bytecode to the memory,JVM will search for main() method.

6.If main() method is not available at main class byteCode then JVM will provide the following.

JAVA6:java.lang.NoSuchMethodError:main

JAVA7:Error:Main method not found in class FirstApp,please define main method as:

public static void main(String args[])

7.If main() method is available at main class bytecode then JVM will access main() method by creating a thread called as "main thread".

8.JVM will access main() method to start application execution by using main thread,when main thread reached to the ending point of main() method then main thread will be in destroyed/dead state.

9.When main Thread is in dead state then JVM will stop all of its internal processes and JVM will go to ShutDown mode.

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202, 2nd Floor, HUDA Maitrivanam,
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