

①. Learn and understand Basic Concepts of object oriented programming.

#### 1. class:

A class is a blueprint for creating objects. It defines the attributes and methods that objects of the class will have.

#### 2. object:

An object is an instance of a class. It is runtime entity that has its own state and behaviour.

#### 3. Encapsulation:

Encapsulation: Encapsulation refers to the bundling of data (attributes) and methods that operate on the data into a single unit (class).

#### 4. Inheritance:

Inheritance is a mechanism where a new class (subclass) is created from an existing class (superclass).

#### 5. Abstraction:

Abstraction is the process of simplifying complex reality by modeling classes appropriate to the problem, and working at the most relevant level of inheritance for a given aspect of the problem.

2. Learn and Understand features of Java

→ Features of Java :-

i) Simple:-

Java was designed to be easy to learn and use. It has a straightforward syntax, with features like automatic memory management (garbage collection) that simplify programming tasks.

ii) Object Oriented:-

Java is an object-oriented programming language, which means it follows the principles of encapsulation, inheritance and abstraction.

iii) Platform-Independent:

One of the most significant features of Java is its platform independence. Java programs can run on any device or operating system having a virtual machine (JVM).

iv) Robust:

Java is designed to be robust and reliable. It includes features like the sandbox security model.

## Vb. Lecture :

Security is a top priority in Java. It includes features like the sandbox security model, which restricts the actions of java programming running within an untrusted environment, and built-in security mechanisms for protecting data & resources.

## Vb. High performance:-

While Java is often associated with interpreted language, it is also highly optimized for performance.

## ③. Windows operating system.

④. Learn and understand Installation of the Java JDK and configure some

Windows operating systems.

The steps for setting the environment in the Windows operating system are as follows:

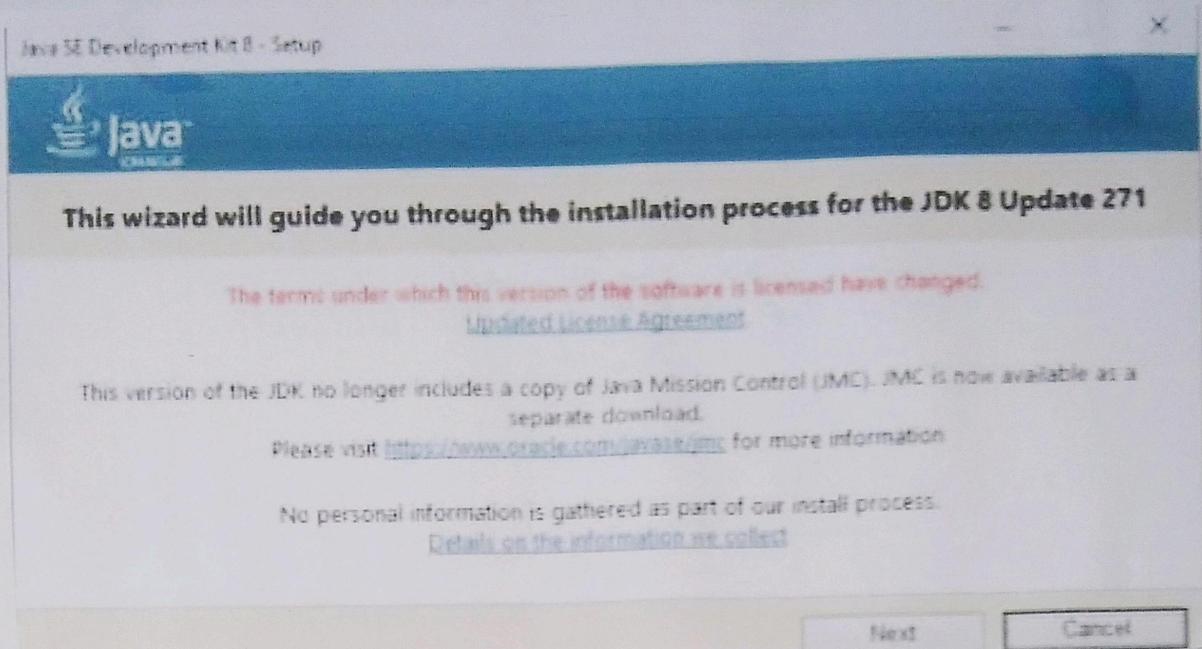
Step 1: You can download the JDK 8 from this link

click(CTRL + CILK) here (jdk software  
or

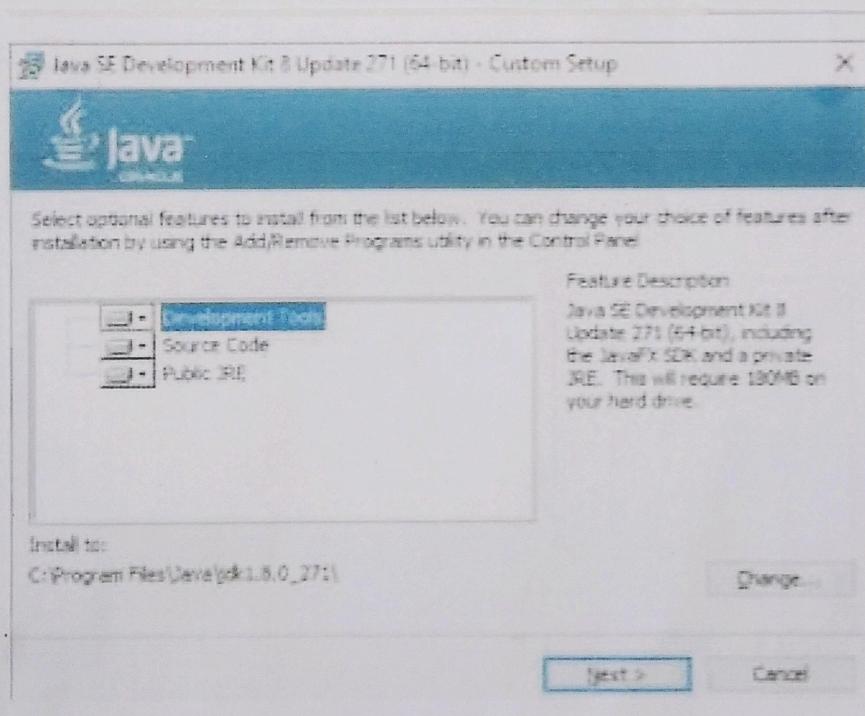
you can download from <https://www.oracle.com/java-technologies/download/>

[For this you have to create an account on oracle]

STEP1:-

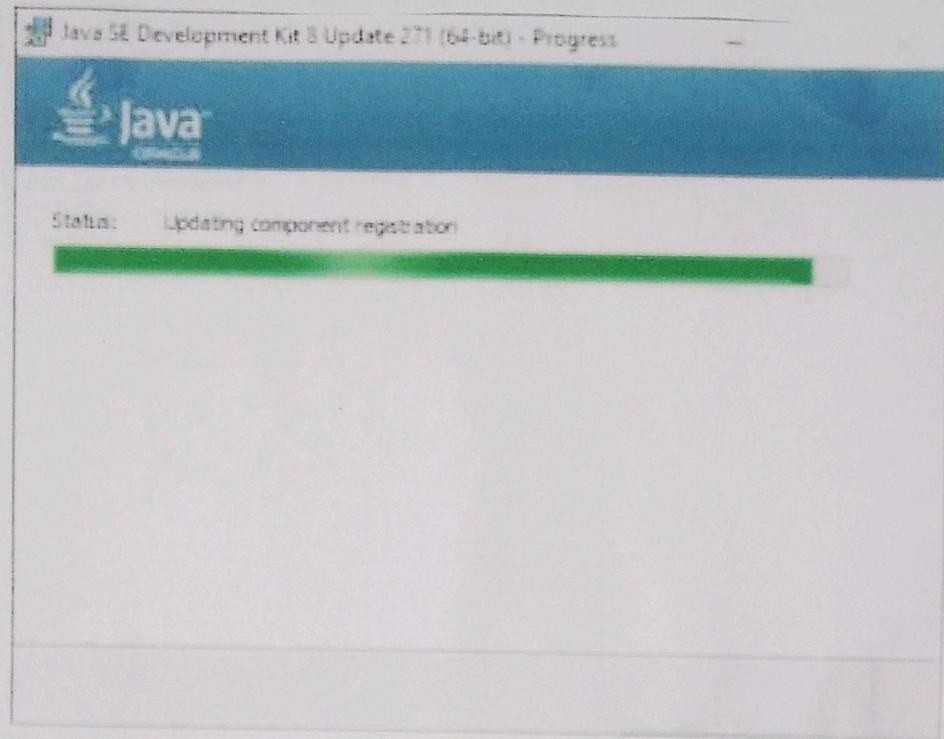


Click on the jdk-8u271-windowsx64.exe file and click on Next button.



## STEP 2:-

If you want to change it or else let it be default depends on your convenience. And click on to Next.



## STEP 3:

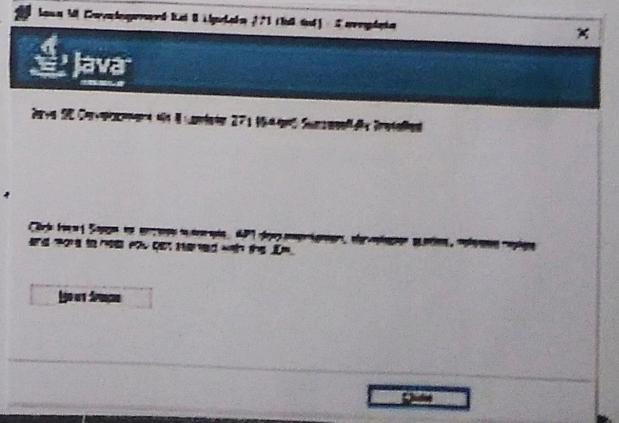
This gives the window for installing wait till it goes to another window.

## STEP 4:

If you want to change the JRE path you can change it or else let it be depends on your convenience and click on next

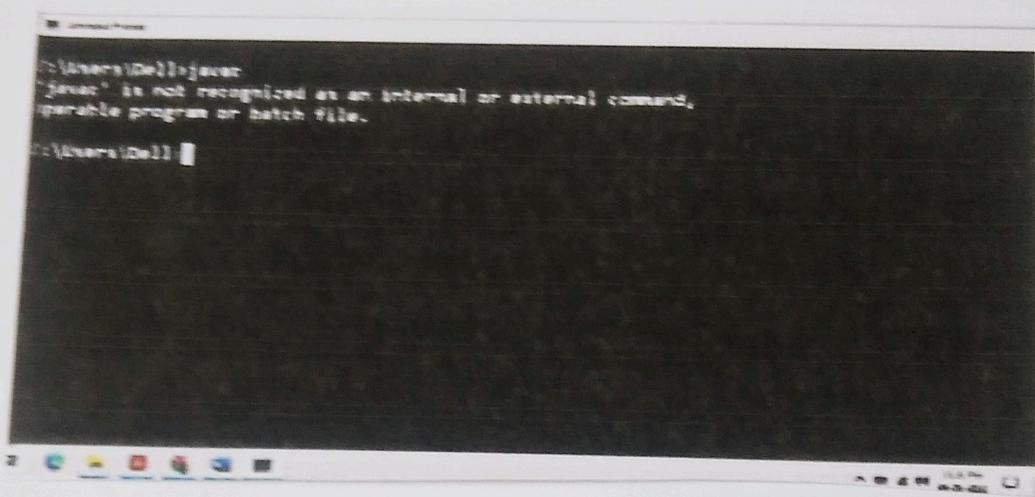
## STEP 5:

Wait until it completes.



## STEP6:

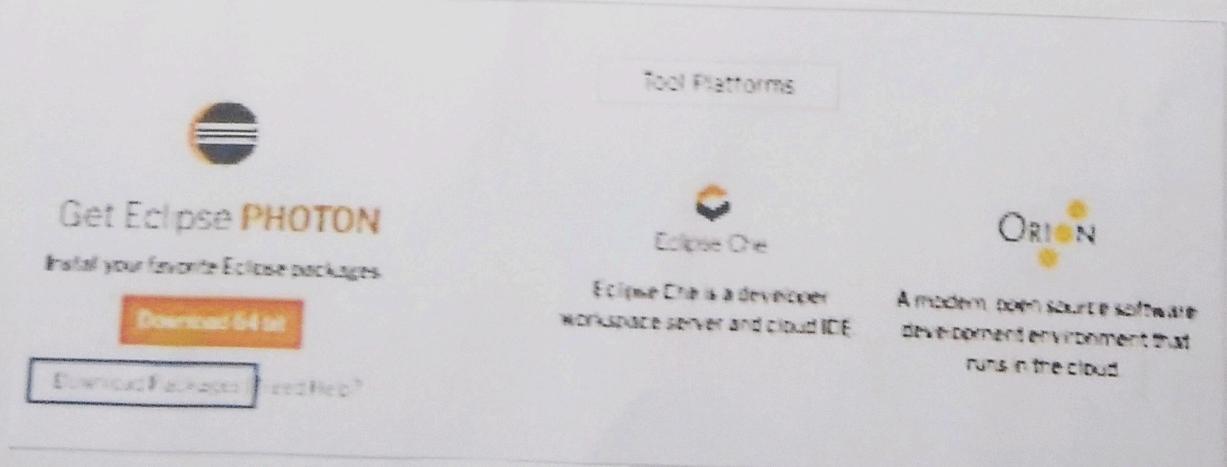
Now you have successfully installed JDK software only when you click Finish/close button. Go to command prompt & enter the java.



A screenshot of a Windows Command Prompt window. The window title is "Windows Command Prompt". The command entered is "java". The output shows an error message: "'java' is not recognized as an internal or external command, operable program or batch file." The command prompt prompt is "C:\Users\DeLL>".

## 5) Install Java editor (Eclipse for Enterprise Java).

→ Go to the <http://www.eclipse.org/downloads/> and you will see something like below.



The screenshot shows the Eclipse Downloads page. It features three main download options:

- Get Eclipse PHOTON**: Includes a "Tool Platforms" section, a "Download 64 bit" button, and a "Download Packages" link.
- Eclipse Che**: Described as a developer workspace server and cloud IDE.
- ORION**: Described as a modern, open source software development environment that runs in the cloud.

All downloads are provided under the terms and conditions of the Eclipse Foundation Software License Agreement unless otherwise specified.

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[File in your local repository \(tar.gz\) \(10.2 MB\)](#)

→ Home | Advanced Search

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Once you select the OS type download link, you will be redirected to the following.

Extract the contents of this zip folder and you will get a folder by the name of "Eclipse" and place this in the C drive.

Computer > Local Disk (C:) > eclipse				
	Name	Date modified	Type	
★ Favorites				10/33
Desktop	↳ configuration	20-06-2018 08:08	File folder	
Downloads	↳ dropins	20-06-2018 08:08	File folder	
Recent places	↳ features	20-06-2018 08:08	File folder	
SkyDrive	↳ p2	20-06-2018 08:08	File folder	
Libraries	↳ plugins	20-06-2018 08:08	File folder	
Documents	↳ readme	20-06-2018 08:08	File folder	
Music	↳ .eclipseproduct	15-05-2018 10:07	ECLIPSEPRODUCT...	1 KB
Pictures	↳ artifacts	20-06-2018 08:08	XML Document	140 KB
Videos	↳ eclipse	20-06-2018 08:09	Application	415 KB
	↳ eclipseconfig	20-06-2018 08:09	Configuration sett...	1 KB
	↳ eclipssec	20-06-2018 08:09	Application	127 KB
Homegroup				
Computer				
Local Disk (C:)				

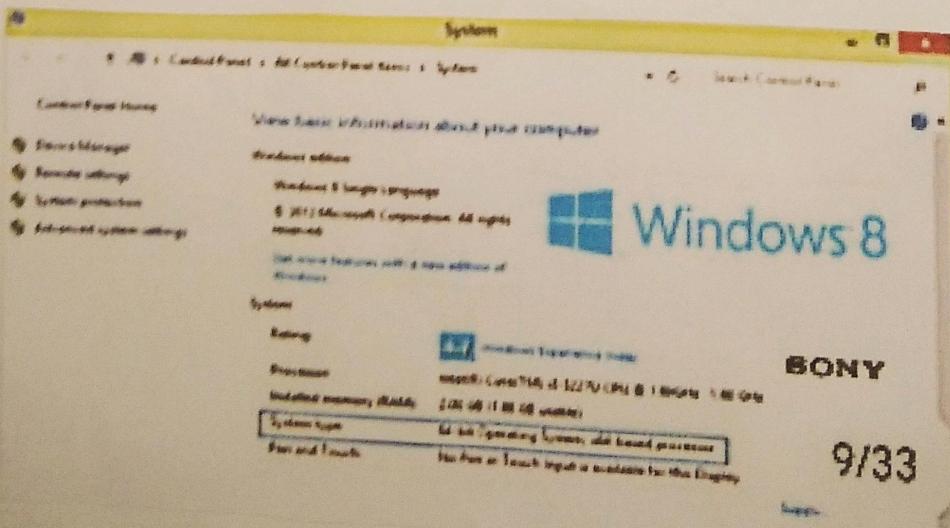
On clicking download packages, the following page will be displayed with multiple Eclipse versions.

The screenshot shows the Eclipse download packages page. At the top, there's a navigation bar with links like Home, About, Products, Eclipse IDE, Eclipse Platform, and Eclipse Downloads. Below that is a search bar and a link to Eclipse Plugins. The main content area is titled "Eclipse Platform Packages". It lists several Eclipse IDE versions:

- Eclipse IDE for Eclipse Developers
- Eclipse IDE for Eclipse Committers
- Eclipse IDE for C/C++ Developers
- Eclipse IDE for Java and OSGi Developers
- Eclipse IDE for Java Developers
- Eclipse IDE for JavaScript and Web Developers

Each listing includes a small icon, a brief description, and download links for Windows, Mac OS X, and Linux. A large blue banner on the right says "Eclipse can really do that?!" and has a "Get Eclipse" button. To the right of the main content, there's a sidebar with "RELATED TOPICS" and a "Other versions" section with a list of links.

For windows system, you can check your OS type from your system information by going through the control panel.

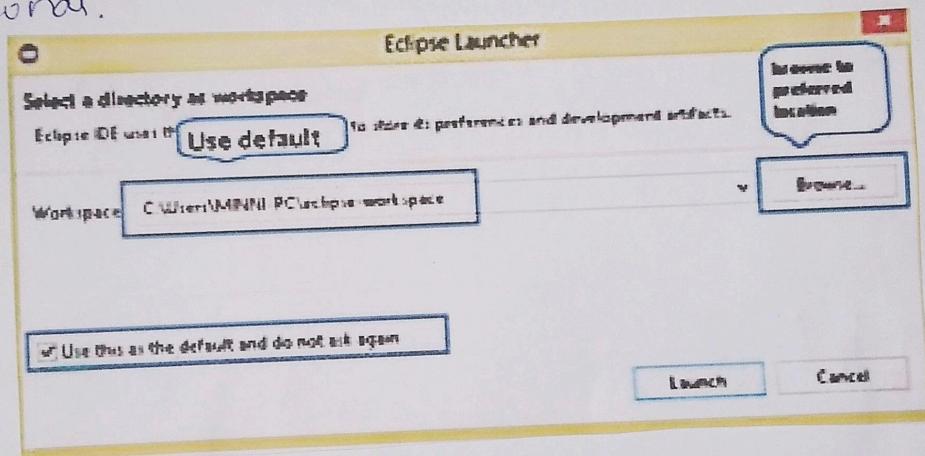


## 5. Setting up your Eclipse workspace.

→ Once you open Eclipse, you will see the below image.



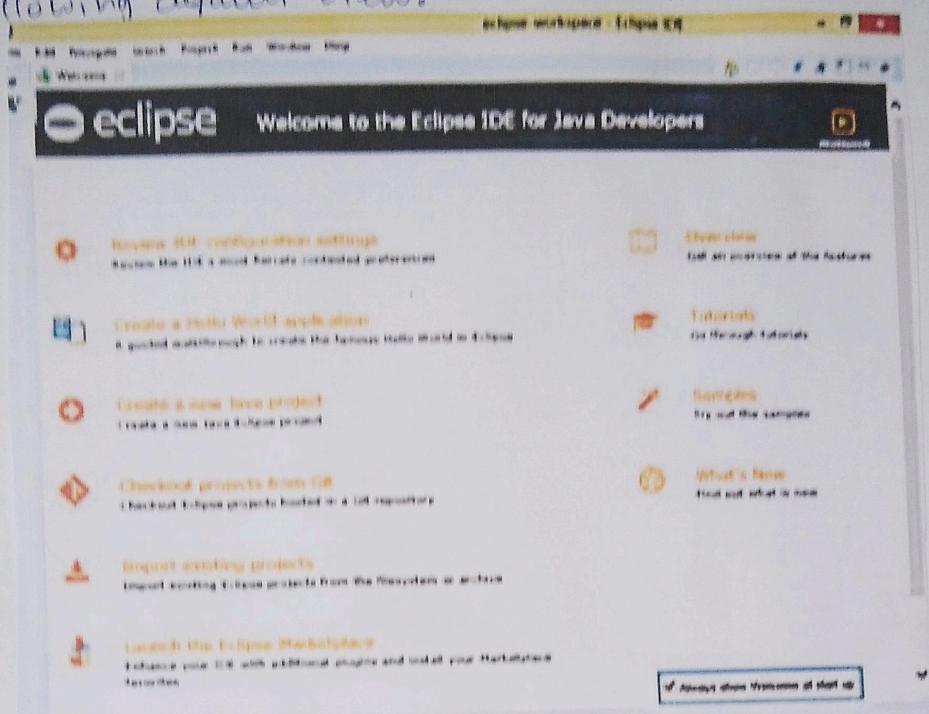
The following window will show up after a few seconds.



Here you can see the highlighted default workspace location. If you are fine with this, then simply click Launch button.

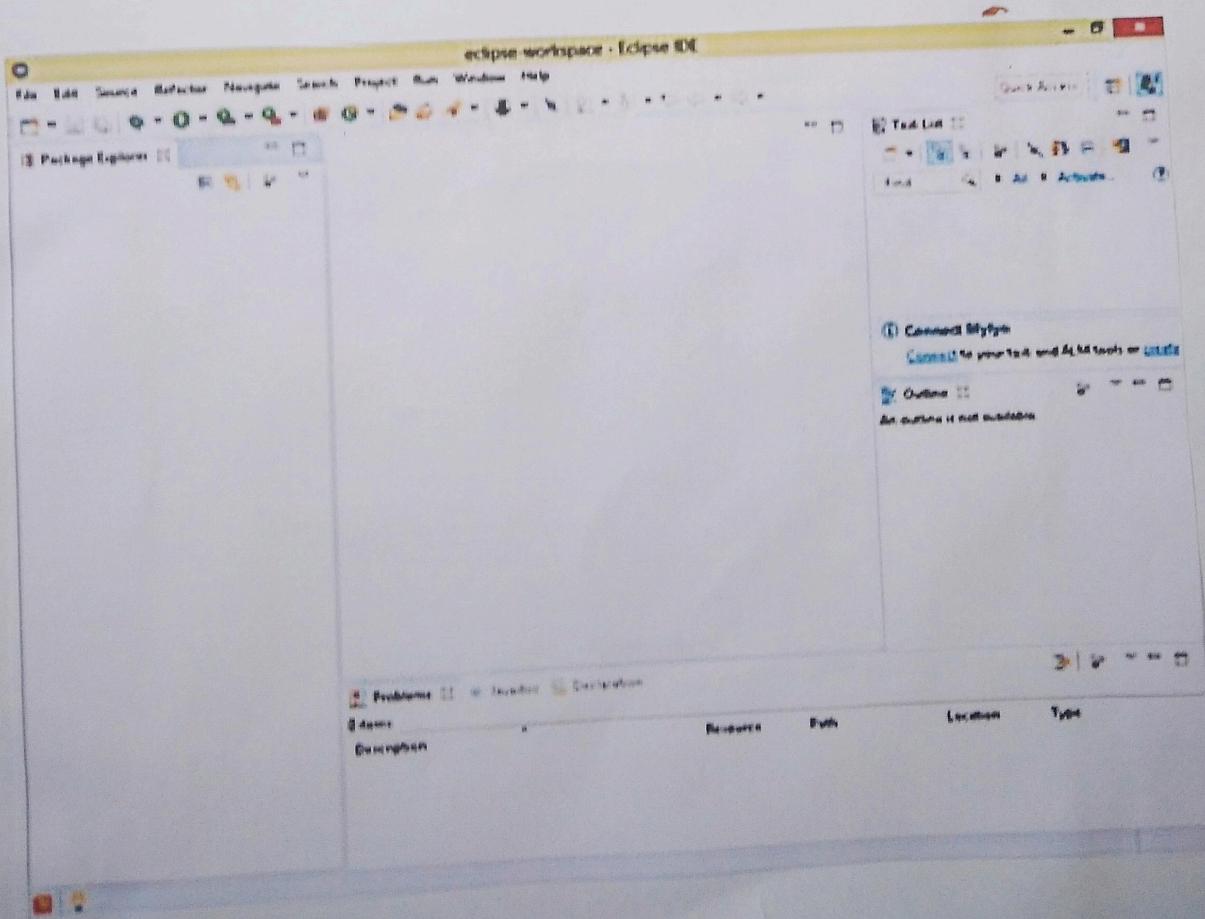
After clicking Launch button, it may take some time for the Eclipse workbench to open.

Once the workspace is launched, you will see the following default view.



This default view is the welcome page of Eclipse.

After closing the welcome page you will follow this view.



4. Learn and Understand Java tokens with suitable example.

#### \* Identifier.

- Identifiers are user designed tokens, used to name a variable, function, class, object, packages, interface and arrays.
- The identifier name must be different from the reserved keywords.

Ex:- pho no, PRICE, radius.

#### \* Literate (constants)

\* Literates in Java are sequence of char, continuous of letter, digit any other character.

- Literal is a notation the response a fixed value (constant) in code.

#### \* operators

An operator is a special symbol that takes one or more arguments and perform operation to produce result.

- Arithmetic
- Assignment
- Relational
- Unary
- Logical

→ Bitwise  
→ Shift

\* Operators:

→ Square Brackets [ ]

→ parentheses ( )

→ comma ( , )

→ Assignment operator ( := )

→ Semicolon ( ; )

→ period ( . )

\* Comments:-

→ Allow us to specify info colon the program inside our Java code.

→ Java compiler recognize those comments token but exclude it from further processing.

→ The Java compiler treat comments as white space.

6. Learn and design and implement simple programs.  
(Hello world).

# Printing Hello World.

```
Public class hello  
{
```

```
    Public static void main (String args[]){
```

```
        System.out.println ("Hello world");  
    }
```

```
}
```

Output:

Hello world.

# odd or even

```
public class Even-or-odd {
```

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

```
        System.out.println ("This program check the  
        no is odd or even");
```

```
        int num = 68;
```

```
        if (num % 2 == 0)
```

```
            System.out.println ("The given number  
            "+ num + " is even");
```

```
        else
```

```
            System.out.println ("The given number  
            "+ num + " is odd");
```

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Main.java

```
1 public class Even_or_Odd
2 {
3     public static void main(String[] args)
4     {
5         System.out.println("This program checks the no is odd or even");
6         int num=68;
7         if(num%2==0)
8             System.out.println("The given number "+num+" is even");
9         else
10            System.out.println("The given number "+num+" is odd");
11    }
12
13 }
14
15
```

Run

Output

```
java -cp /tmp/2c16UFj9ti Even_or_Odd
This program checks the no is odd or even
The given number 68 is even
```

Clear

Search

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Java Certification >

Main.java

Run

Output

Clear

Main.java

```
1 // Online Java Compiler
2 // Use this editor to write, compile and run your Java code online
3
4+ class HelloWorld {
5+     public static void main(String[] args) {
6         System.out.println("Hello, World!");
7     }
8 }
```

Output

```
java -cp /tmp/2c16UFj9ti HelloWorld
Hello, World!
```

Search

17:55 26-02-2024 ENG IN