How to Use Eclipse for Java

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Eclipse is the most popular IDE for **Java application development**. In order to use eclipse effectively, we must familiar with the **workbench, concepts**, and **components** of **Eclipse IDE**. Before moving ahead in this section, we will understand **what is eclipse in Java, eclipse platform overview**, and **how to use eclipse for Java**.

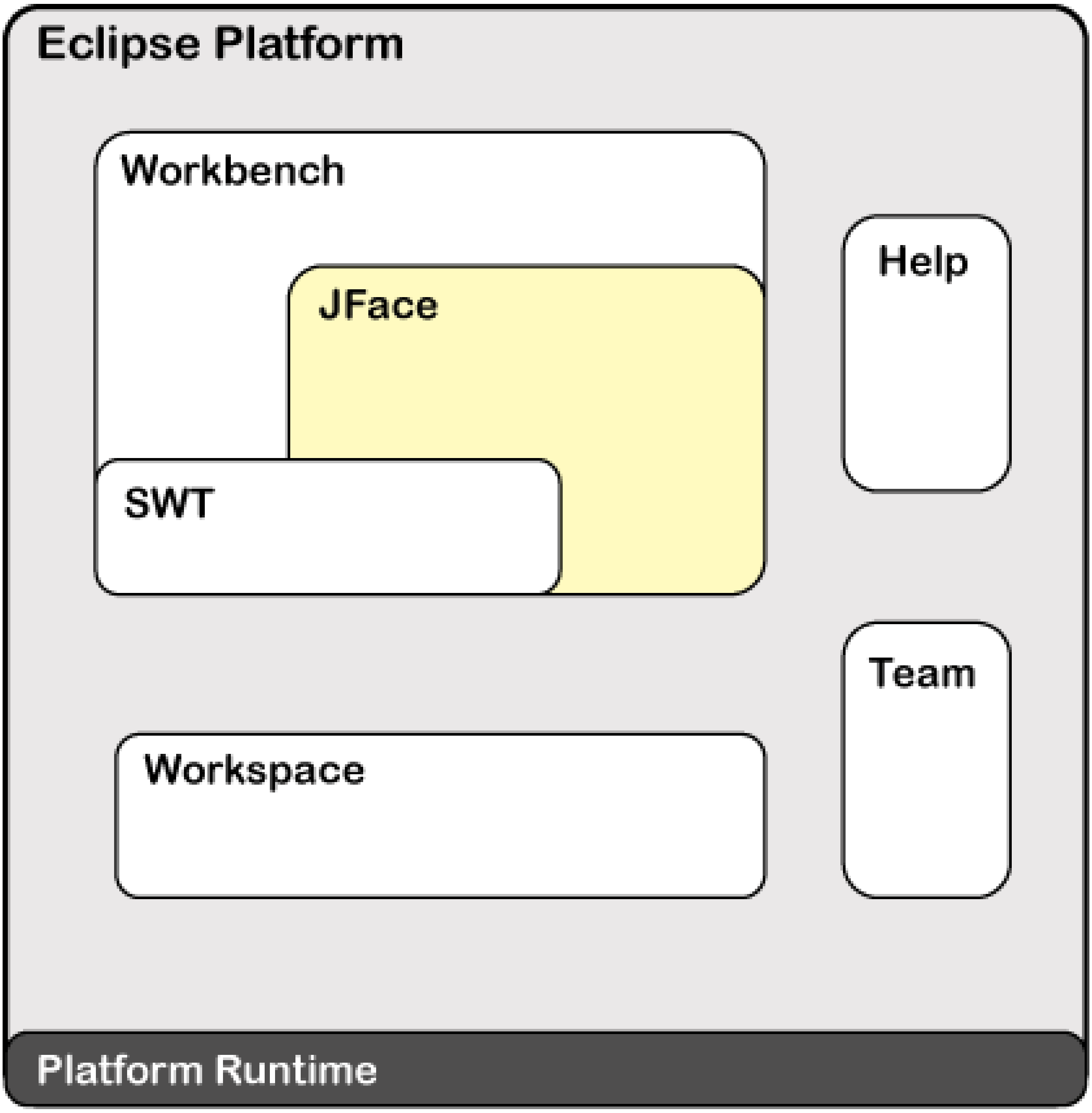
What is eclipse in Java?

In 2001, IBM formed a consortium to support the development of Eclipse IDE. In 2004, it become the **Eclipse Foundation** whose main vision was to guide, implement, and share the development of open-source (software whose source code is released under a license) Eclipse projects in a vendor-natural environment. It is an **open-source Integrated Development Environment** (IDE). It is written in Java. It is used to develop Java applications (Java SE and Java EE). It is also used to develop applications in other languages, such as C, C++, PHY, Python, Perl, and other web projects with the help of extensible plug-ins. We can run it on different platforms, like Windows, Linux, and macOS. Presently, it is the widely used IDE for developing Java applications.

Eclipse Platform Overview

It itself structured as a subsystem because it implements one or more plug-ins. These subsystems are built on the top of the small runtime engine or system. The runtime engine is based on **Equinox**. It is an implementation of the OSGi core framework specification. It allows eclipse to be used with other programming languages, typesetting languages such as LaTeX, and networking applications, such as database management system.

The following figure shows the simplified architecture of the eclipse.



How to use Eclipse for Java?

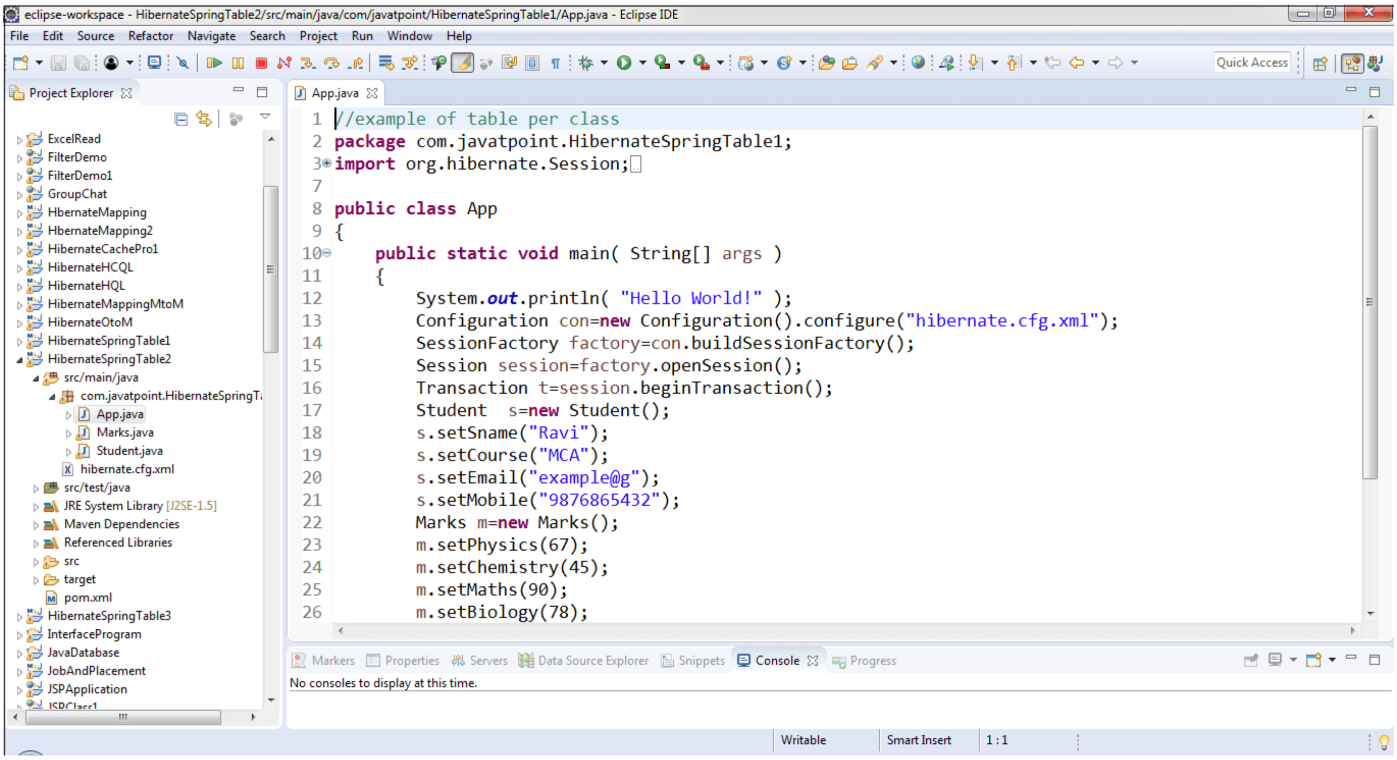
Eclipse Foundation has a long history of development, since it has released many versions. It uses an astronomy name for its versions, such as **Juno, neon, Kepler, Oxygen, Photon, Mars**, etc. the latest version uses a naming scheme, i.e. year-month format, such as 20219-20. We recommend you to download and install the latest version of Eclipse IDE i.e. Eclipse 2020-06.

Note: Before installing the eclipse, make sure that JDK is installed in the system and the path is properly set. It is because eclipse depends on JDK/ JRE.

Before moving to the eclipse IDE let's understand some key concepts and components in the IDE.

Workbench

In eclipse, **workbench** (desktop development environment) is a window instance of IDE. It consists of one or more **perspectives** to achieve seamless tool integration and provides a common paradigm for the creation, navigation, and management of workspace resources. Further, perspectives consist of **editors** and **views**. It allows us to open multiple workbenchs windows for projects, simultaneously. Remember that all the workbenches use the same workspace. The following window shows the Eclipse workbench.

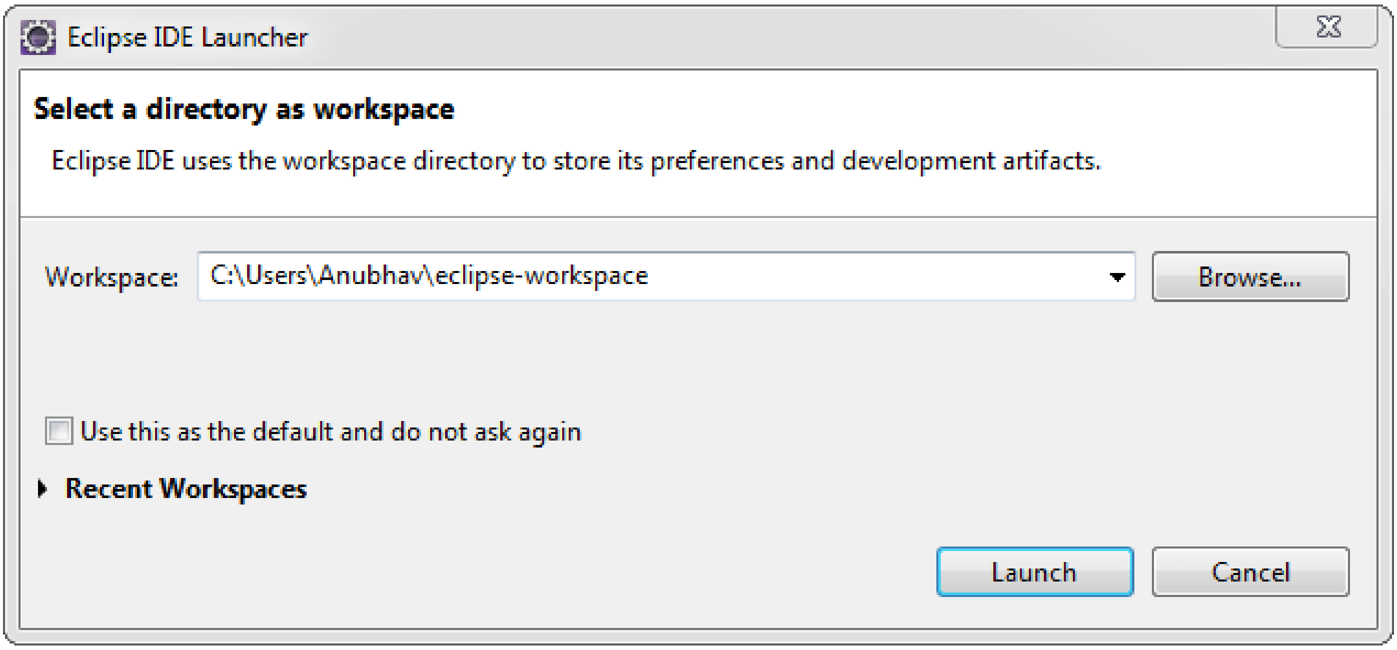


```java
//example of table per class
package com.javatpoint.HibernateSpringTable1;
import org.hibernate.Session;

public class App
{
    public static void main( String[] args )
    {
        System.out.println( "Hello World!" );
        Configuration con=new Configuration().configure("hibernate.cfg.xml");
        SessionFactory factory=con.buildSessionFactory();
        Session session=factory.openSession();
        Transaction t=session.beginTransaction();
        Student  s=new Student();
        s.setSname("Ravi");
        s.setCourse("MCA");
        s.setEmail("example@g");
        s.setMobile("9876865432");
        Marks m=new Marks();
        m.setPhysics(67);
        m.setChemistry(45);
        m.setMaths(90);
        m.setBiology(78);
```

No consoles to display at this time.

Workspace

In IDE, **workspace** is a directory or folder where the projects are stored. Before starting the IDE, we must select the workspace. The IDE allows us to create multiple workspace, if needed. We can also switch among the IDEs without closing the application. The advantage of workspace is that it allows us to work with multiple projects at a time. Eclipse stores each workspace preferences separately in the **.metadata** directory which is located in the workspace root.



Eclipse IDE Launcher

Select a directory as workspace

Eclipse IDE uses the workspace directory to store its preferences and development artifacts.

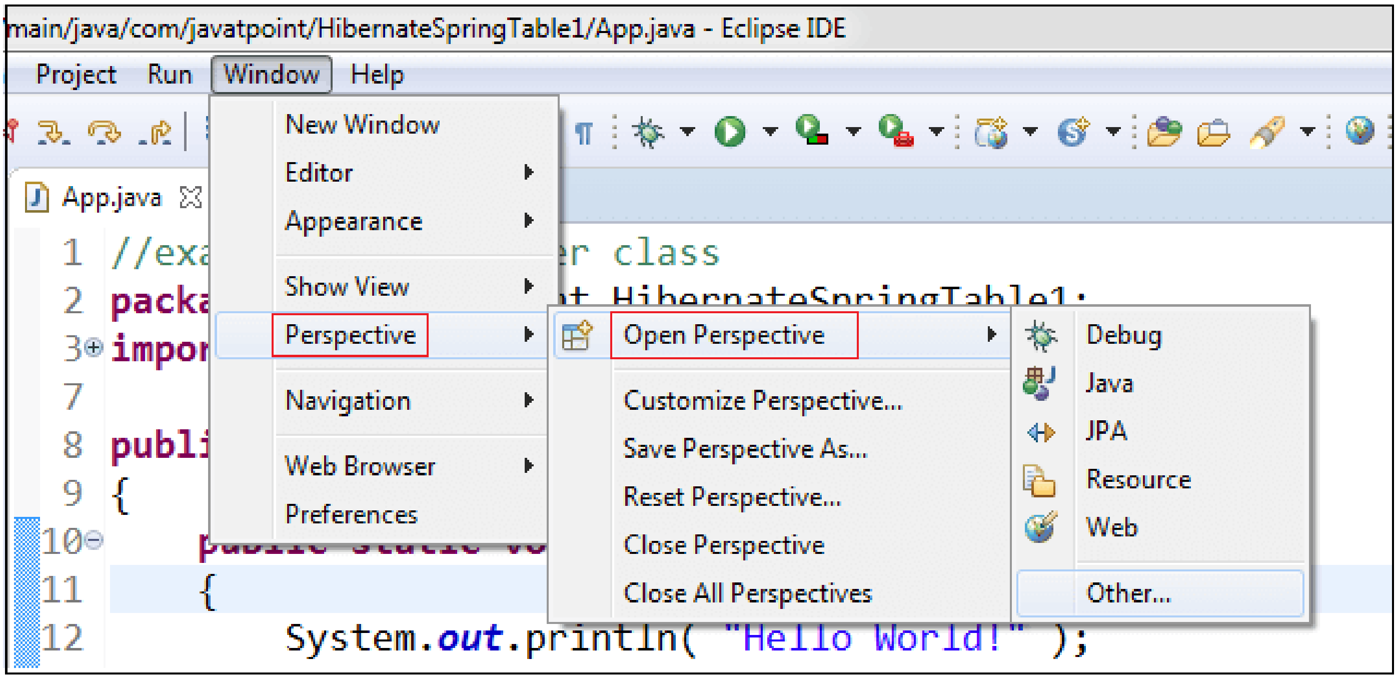
Workspace: C:\Users\Anubhav\eclipse-workspace

□ Use this as the default and do not ask again

Perspectives

The **perspective** provides the initial layout that helps the programmer to accomplish the work and task. Each perspective provides different sets of views and editors.

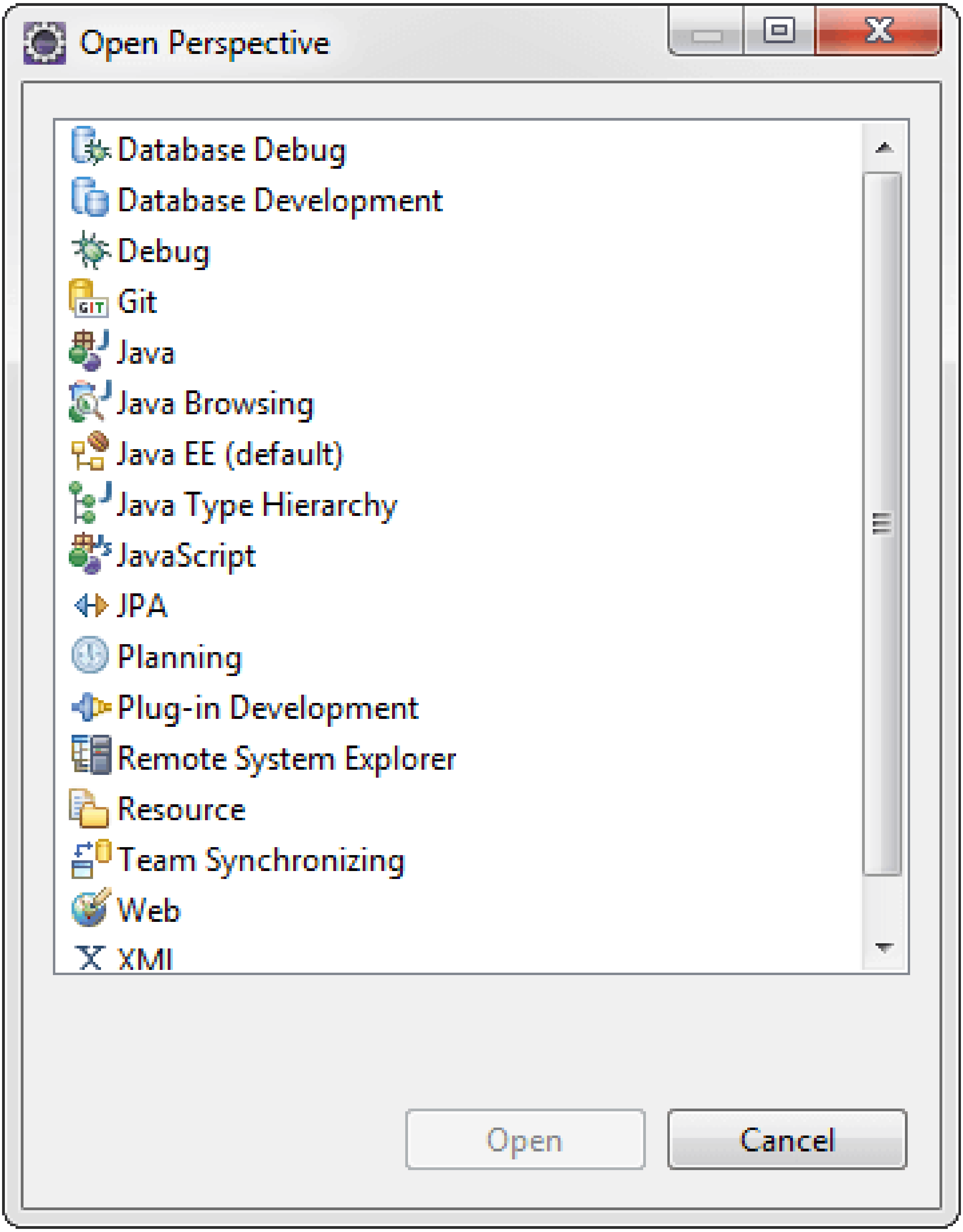
We can open the perspective by clicking on the **Windows menu -> Perspective -> Open Perspective**.



The Java perspectives provide the following editors and views:

- **Java Editors:** It allows us to edit or implement source code in Java source files.
- **Outline:** It displays the structure of the source file in the active editor.
- **Problems:** It shows the detected errors, problems, and warnings.
- **Javadoc:** It provides the documentation of the class, method, filed, etc.
- **Declaration:** It shows the declaration statement for the variable at the mouse pointer tip.
- **Task List:** It shows the tasks downloaded from the bug tracker tool, like Bugzilla.

Eclipse provides the following Java perspective:

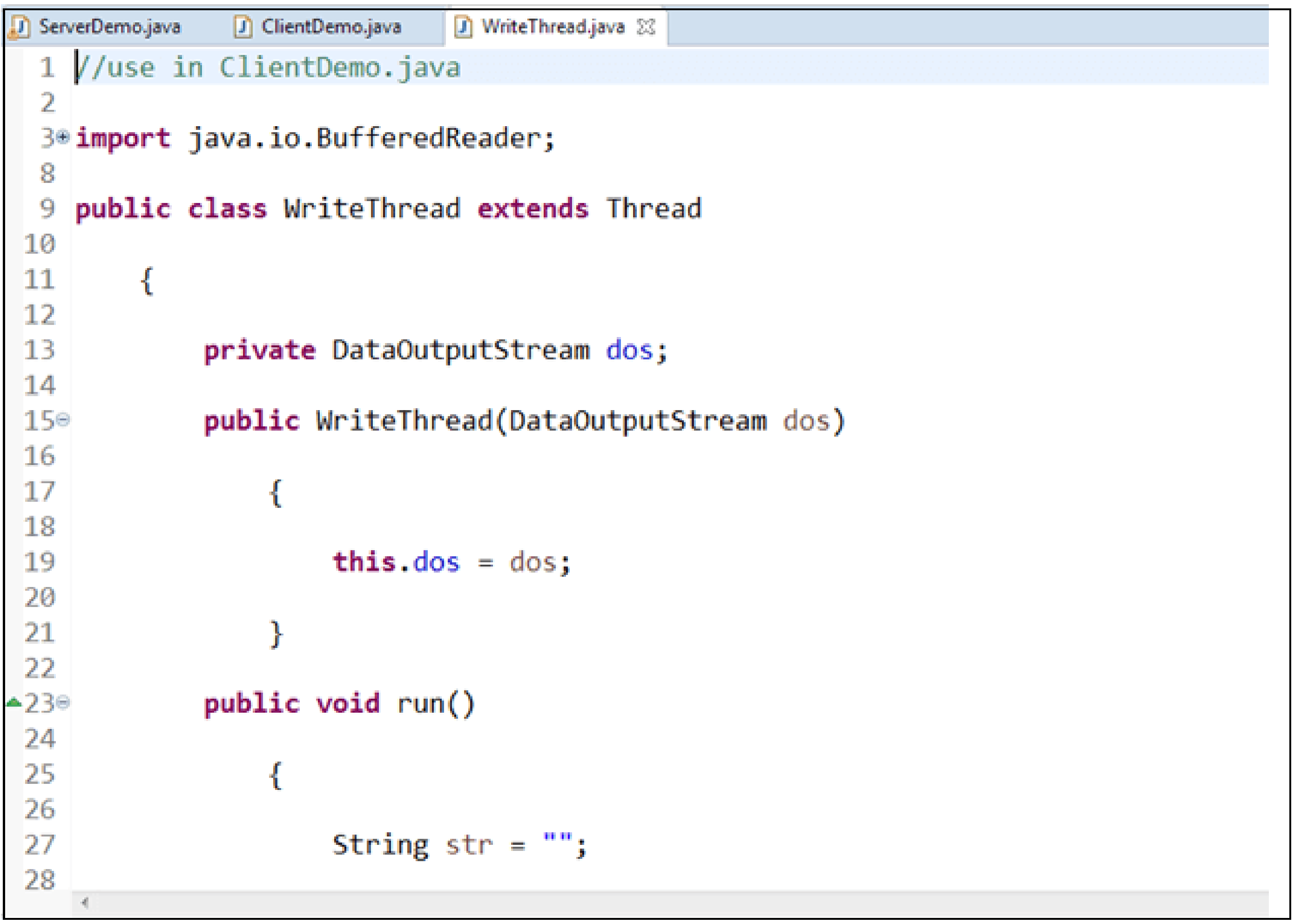


Open Perspective
Database Debug
Database Development
Debug
Git
Java
Java Browsing
Java EE (default)
Java Type Hierarchy
JavaScript
JPA
Planning
Plug-in Development
Remote System Explorer
Resource
Team Synchronizing
Web
XML
Open
Cancel

Editors

Editors are the center of the workbench. It allows us to edit the source files. When we click on the **.java** file it opens in the editor. In eclipse, we can open multiple editors simultaneously. But we can work on a single editor at a time. The title bar shows the name of the file. When we add something in the file, the unsaved changes indicate by an asterisk (*). We can switch among the editors by pressing the **Ctrl**+**F6** key.

The following image shows the editor.



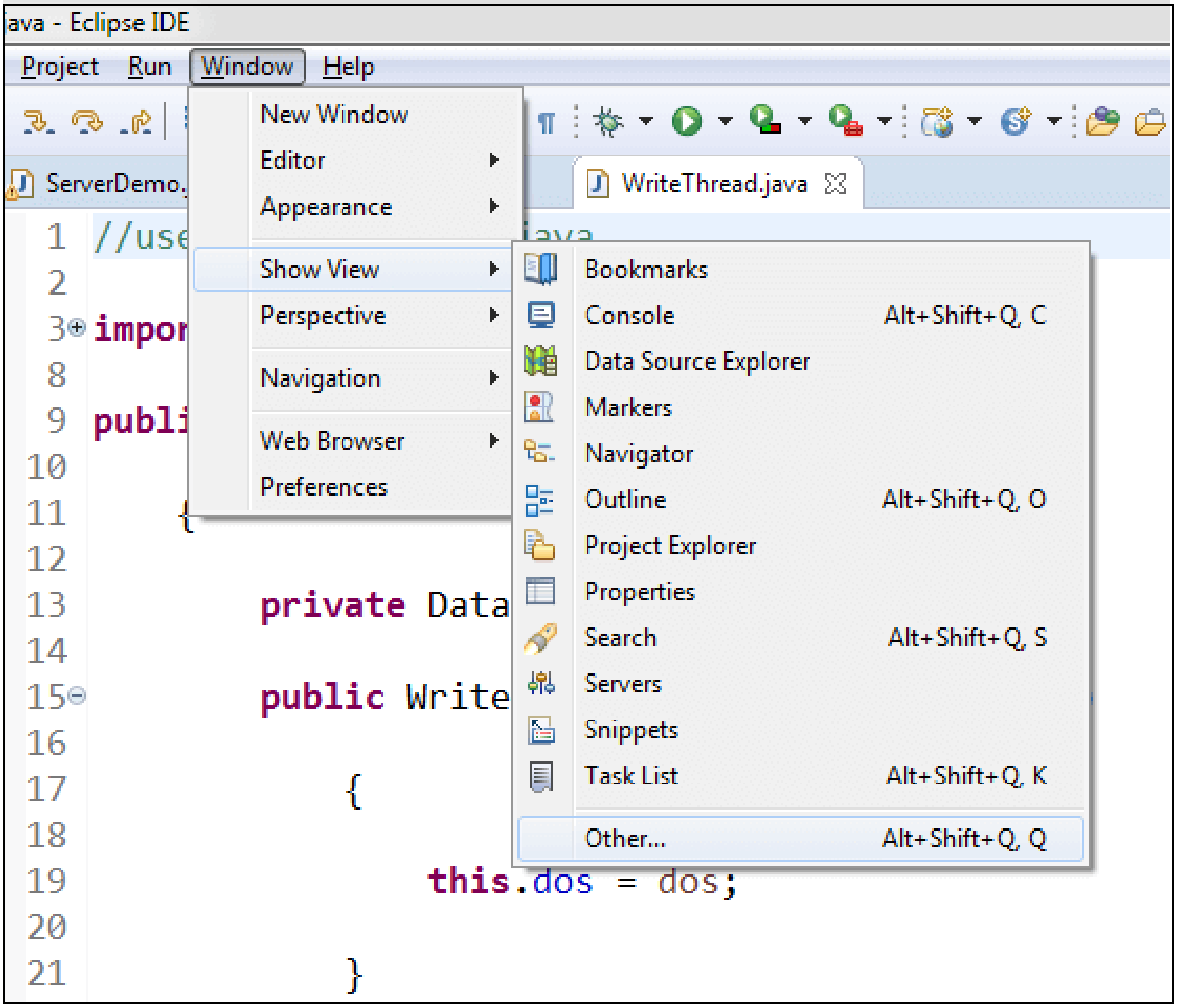
```
//use in ClientDemo.java

import java.io.BufferedReader;

public class WriteThread extends Thread

    {

        private DataOutputStream dos;

        public WriteThread(DataOutputStream dos)

            {

                this.dos = dos;

            }

        public void run()

            {

                String str = "";

```

View

In eclipse, we use the view to navigate the information in workbench. Using an outline view, we can quickly jump to the specific element of the source file. examples of view are **Bookmarks, Console, Navigator, Search, Project Explorer**, etc. If we want to open view in eclipse, click on the

Window menu -> Show View. It shows the list of views available in eclipse. We can switch among the multiple views by pressing the **Ctrl+F7**.

- **Outline:** It is used to display the structure of the source file. It shows which methods, classes, and fields we have used in the active file.
- **Project Explorer:** It shows the directory structure of the project.
- **Task List:** It shows the tasks downloaded from the bug tracker tool, like Bugzilla.
- **Console:** It displays the output, errors, and exception if any.
- **Servers:** It shows the server that is available for use and other information related to the server.
- **Search:** It allows us to search for anything in the project.



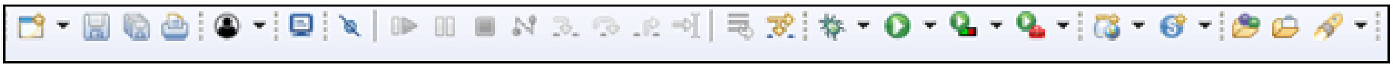
```
//use
impor
publi
    {
        private Data
        public Write
            {
                this.dos = dos;
            }
```

Toolbars

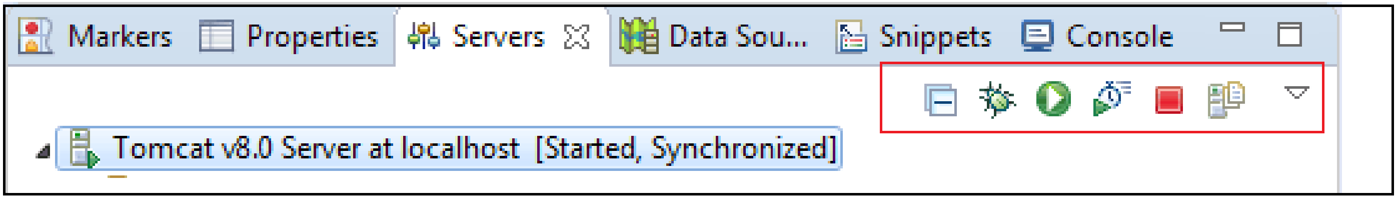
There are four types of toolbars available in eclipse:

- Main Toolbar
- Individual Toolbar
- Perspective Search Toolbar
- View Stack Toolbar

Main Toolbar: The main tollbar is placed just below the main menu. It contains the buttons in pictorial form. The buttons are grouped in different sections, like save, create, open, run, debug, etc.

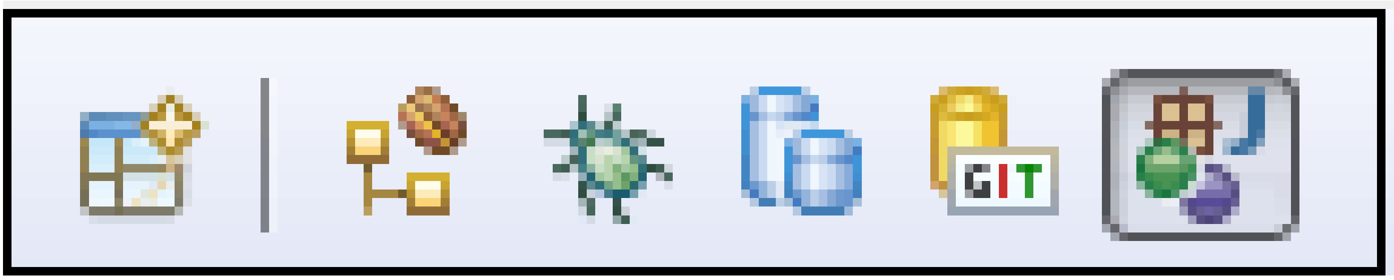


Individual Toolbar: Each view in eclipse has its own toolbar that is displayed at the top right corner. The following image shows the tollbar for the Servers view.

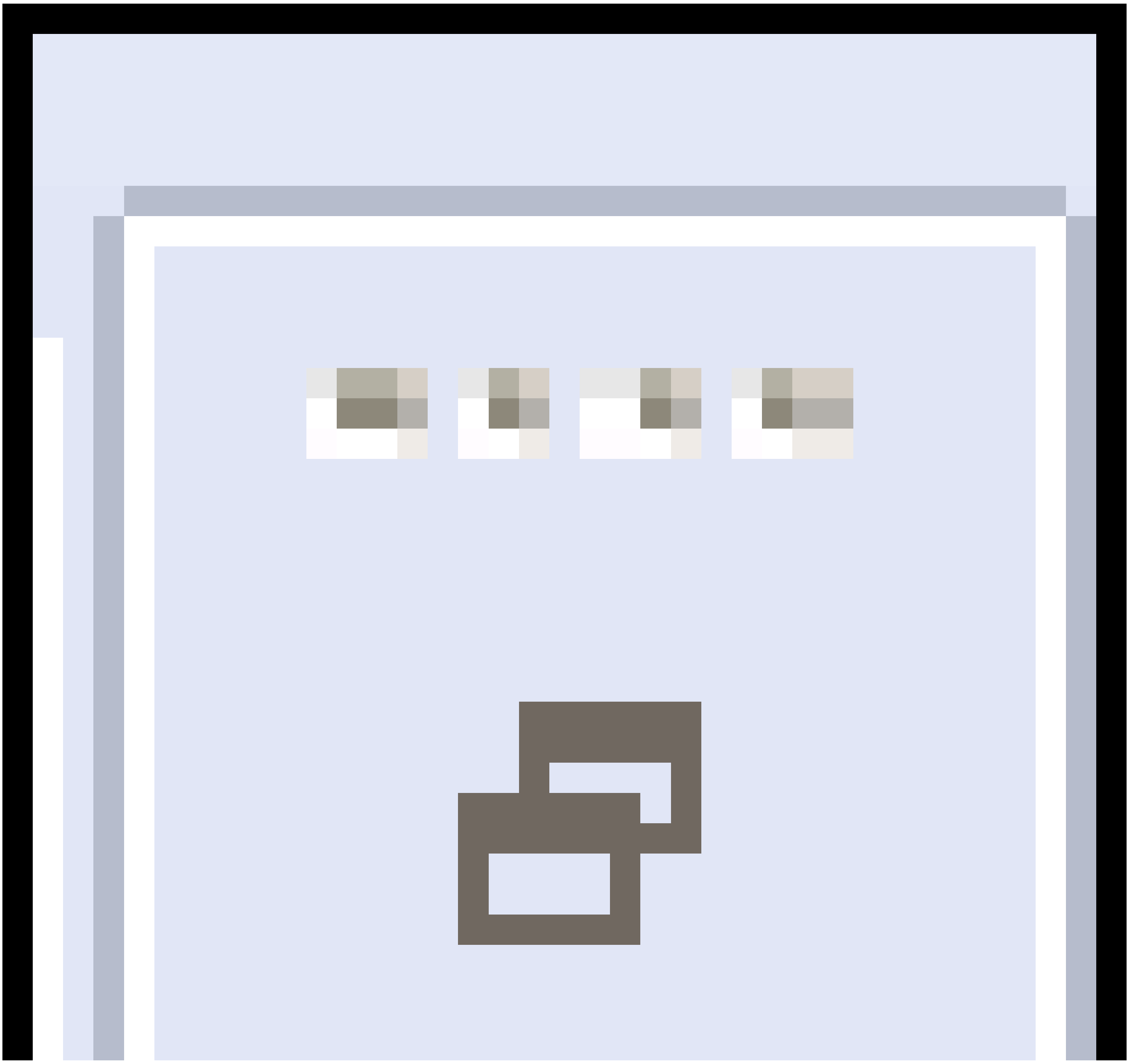


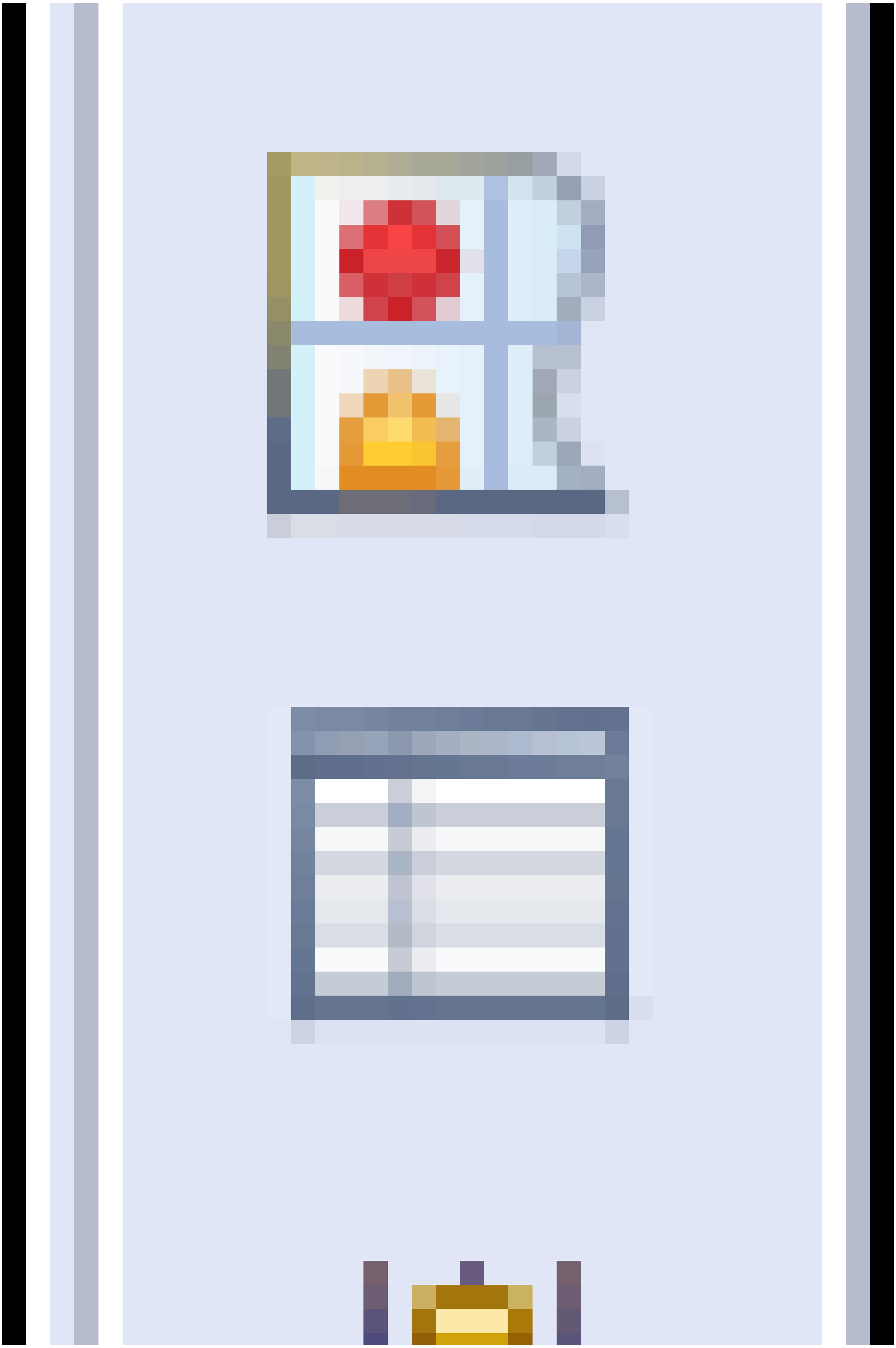
Tomcat v8.0 Server at localhost [Started, Synchronized]

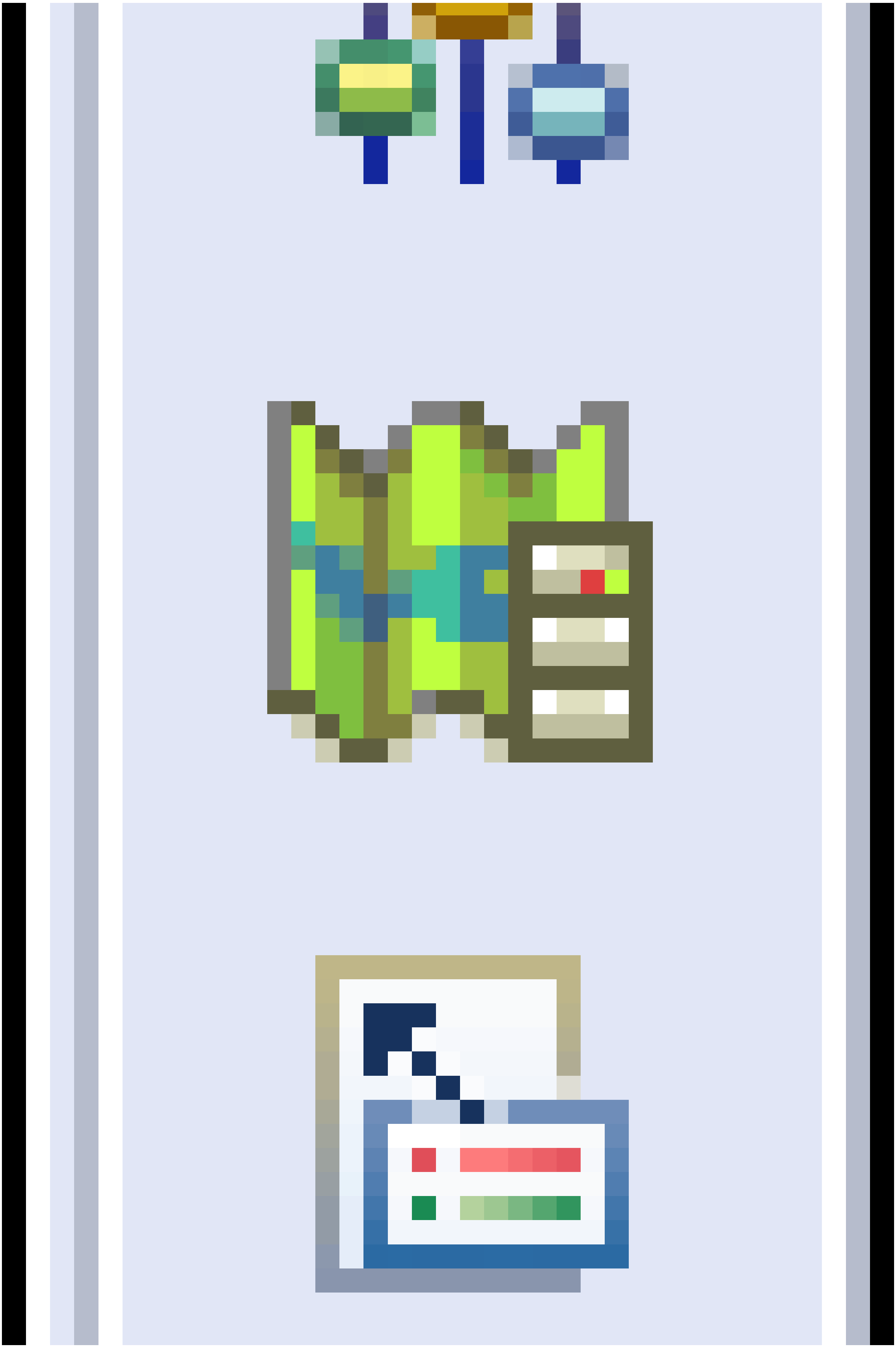
Perspective Search Toolbar: It is placed on the right side of the main toolbar. It contains the button that allows us to switch among open perspectives in workbench.

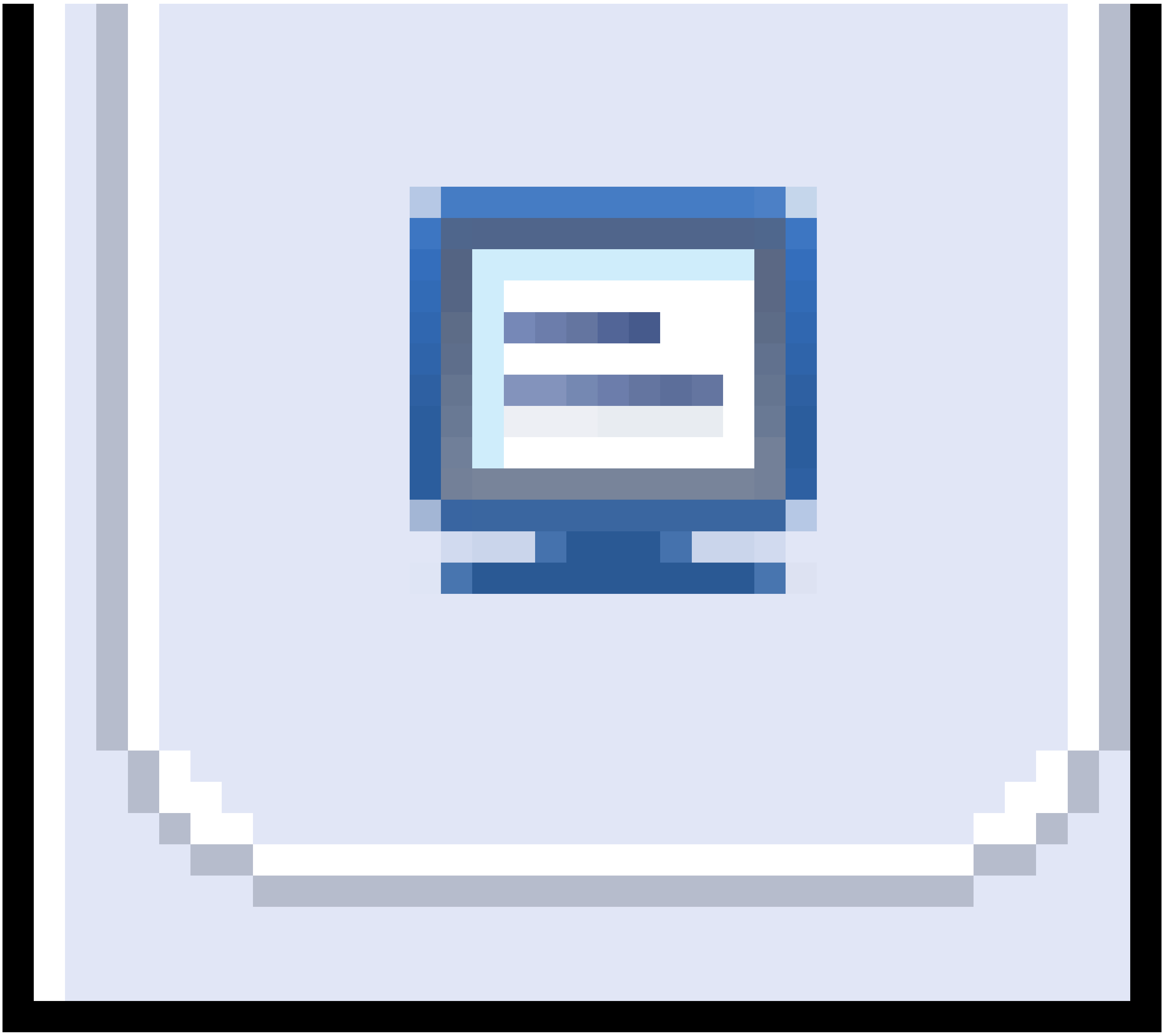


View Stack Toolbar: It is a tollbar that appears on **minimizing** a view in a stack. The icons on this bar allow us to open an individual view in the stack. The toolbar shown in the following image appears when we minimize the Console view.









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