Name: Umakanth Pendyala

Roll: 221810305050

Class: B5

Integrated Development Environment

What is an IDE?

An IDE stands for Integrated Development Environment, is basically a software tool that provide many features in building applications. These features are mostly in Graphical User Interface format which helps in using them much faster and produces a modular code behind the scenes.

A Typical IDE consists of 3 parts

1. **Source Code Editor**: A text editor which is used to write code, provided with features like auto text completion, sentence correction, error detection.
2. **Debugger**: A feature that can be used to simulate every step in the program in-order to identify the bug. This feature also helps in forward and backward movement of the control.
3. **Local Build Automation**: Come’s with features such as build option, which automates certain commands to set the application up and running and also can check certain testcases according to the developer customization.

Why do developers use an IDE?

The main idea behind the IDE is to provide an environment for the developer, where he can get all the tools needed to develop a certain application, right out of the box. This way, the developer can concentrate more on the core logic part of the application which automatically leads to faster development and structural integrity of the code.

Though IDE’s have their own restrictions, they are widely used by the onboarding developers as they are not aware of the code behind these tools. Consider an example of printing “Hello world” in Java. If we write this on a note pad, we need to write “**System.out.println(“Hello world”)**” in full which takes more effort, we can do the same thing in a JAVA IDE just by typing “**SOP(“hello world”)**”. Another popular example of using an IDE is for the popular library of code snippets it provides before writing the code. A developer can create his own code snippet and use it as he wish or use an pre-existing code snippet which is sufficient in most cases.

Consider an example of “MYSQL Workbench” which provides a feature to draw ER diagrams (Class hierarchy diagram) right in the database folder. This way, the developer can use the features inside that ER diagram editor to create better ER diagrams and save them right where the schemas are.

What are the different kinds of IDE’s?

IDE’s that support multiple programming languages and which are popular among them are listed below

1. Eclipse: Supports C, C++, Python, Java, PHP, MySQL etc.
2. Net Beans: Supports Java, JavaScript, PHP, Python, C++, C etc.
3. Android Studio: Supports Java, Kotlin, flutter, React (android modules).
4. MYSQL Workbench: Supports MYSQL, JavaScript, Python
5. Visual Studio Code: Supports almost every programming language

Popular Classification of IDE’s

1. Mobile Development IDE’s: Used specifically to develop mobile applications. They provide features to develop cross-platform applications (developing android apps on windows operating system)
2. Cloud IDE’s: These IDE’s make the developers to use the environment in the cloud itself, so that they don’t have to set up the local environment. This way the developer can use the IDE from any operating system.