What is Event Driven Programming and why it is need ?

Event-driven programming (EDP) is a type of programming that is based on Event-driven programming is a programming paradigm in which events control the flow of program execution, such as a user action, such as a mouse click or key press, or a message from the operating system or another program, determine the flow of program execution. An event-driven application is one that detects and responds to events as they happen. The concept is based on interrupt-driven programming, which was common in early command-line environments like DOS and embedded computers (where the application is implemented as firmware).

Event-driven architectures are perfect for increasing agility and speed. The use of an event-driven architecture in distributed computing models simplifies horizontal scalability and makes them more resilient to failure. This is because, for high availability, application state can be duplicated across numerous parallel snapshots.

Key features of event driven programming

Servant-Oriented

Time Driven

Event-Handlers

Trigger-functions

Events

Simplicity of the Program

What is Event?

Even driven programming uses events as one of the primary features. An event is defined as an action or occurrence that is recognized by a piece of software and can be handled by it. These events can be generated or triggered by the system in a variety of ways, including by the user or through other means. When a user generates or triggers an event, they will interact with an object which may be a mouse-clicked button or even just a keyboard button being picked.

What is Event Handler and Event Handler Method?

A callback method that executes immediately once an event occurs is known as an event handler in programming. It specifies what should be done in the following of an occurrence. For this activity to take place, the programmer develops a code. Some common examples of event handlers are, when a new tab is launched, a notification appears on the webpage, when the submit button is pressed, the form is submitted, a mouse click changes the background color.

We define an event handler method in the event receiver to reply to an event. This method must match the delegate's signature for the event we're working on. We conduct the activities required when the event is raised in the event handler, such as gathering user input after the user clicks a button.

What are trigger functions and why are they important?

In event-driven programming, trigger functions are the one that need to decide what code to run when a given event occurs, and they are used to make the choice to use for the event when a certain event occurs. Each object has its own set of trigger functions, with most objects having one trigger function for each possible event that is likely to occur. For example, VB.NET programming language enables programmers to construct defined controls for programs that include similar objects. This allows the programmer to reuse the defined control in other software objects. However, in order for such a defined control to function properly, the trigger functions must also be defined. There will be no attributes or methods for that specific control if this is not done.

The system will not know which event-handlers to run when a given event occurs without trigger functions. This could lead the software to run event handlers that it shouldn't, resulting in faults and errors.

What is Event Loop?

The Event-loop is a feature that allows a computational code to handle all events. It acts in a circular manner throughout the execution of the entire program, keeping track of all incoming and outgoing events. Event loops are required in every event-driven program. Event loops are the things that test/check the interface on a regular basis to see if an event has occurred or not. For example, the event loop checks events such as pressing a key on the keyboard or clicking a mouse. If the event loop discovers that an event has occurred, it will transmit the information to the trigger function, which will then request that the correct event handler runs the code that was written specifically for that application. Most event-driven programs include particular features that enable programmers to design custom event loops. This will enable them to make their apps far more flexible, as well as improve the functioning of their applications. This allows programmers to create events for every conceivable scenario within their programs.

What is Time-Driven?