Assignment 100: What is the difference between GetMessage( ) and DispatchMessage( ) function?

1. GetMessage() and DispatchMessage() are both functions used in the message loop of a Windows application to process messages from the message queue, but they serve different purposes:

❖ GetMessage() Function:

- GetMessage() retrieves messages from the application's message queue.
- It retrieves messages from the message queue and removes them, if any, and then passes them to the application for processing.
- If there are no messages in the queue, GetMessage() waits until a message arrives, effectively pausing the execution of the program until there is a message to process.
- Typical usage involves calling GetMessage() in a loop to continuously retrieve messages until a termination message like WM_QUIT is received.

Example:

```
MSG msg;
while (GetMessage(&msg, NULL, 0, 0)) {
    TranslateMessage(&msg);
    DispatchMessage(&msg);
}
```

❖ DispatchMessage() Function:

- DispatchMessage() dispatches a message to the appropriate window procedure (callback function) for processing.
- It takes a message retrieved by GetMessage() (or PeekMessage()) and sends it to the window procedure associated with the window that the message is intended for.
- The window procedure then handles the message, performing any necessary processing based on the message type.
- After processing, the window procedure typically returns control to the message loop, which continues to retrieve and dispatch messages.

Example:

```
MSG msg;
while (GetMessage(&msg, NULL, 0, 0)) {
    TranslateMessage(&msg);
    DispatchMessage(&msg);
}
```

In summary, GetMessage() retrieves messages from the message queue, while DispatchMessage() dispatches those messages to the appropriate window procedure for processing. Together, they form the core of the message loop in a Windows application, allowing it to respond to user input and system events.