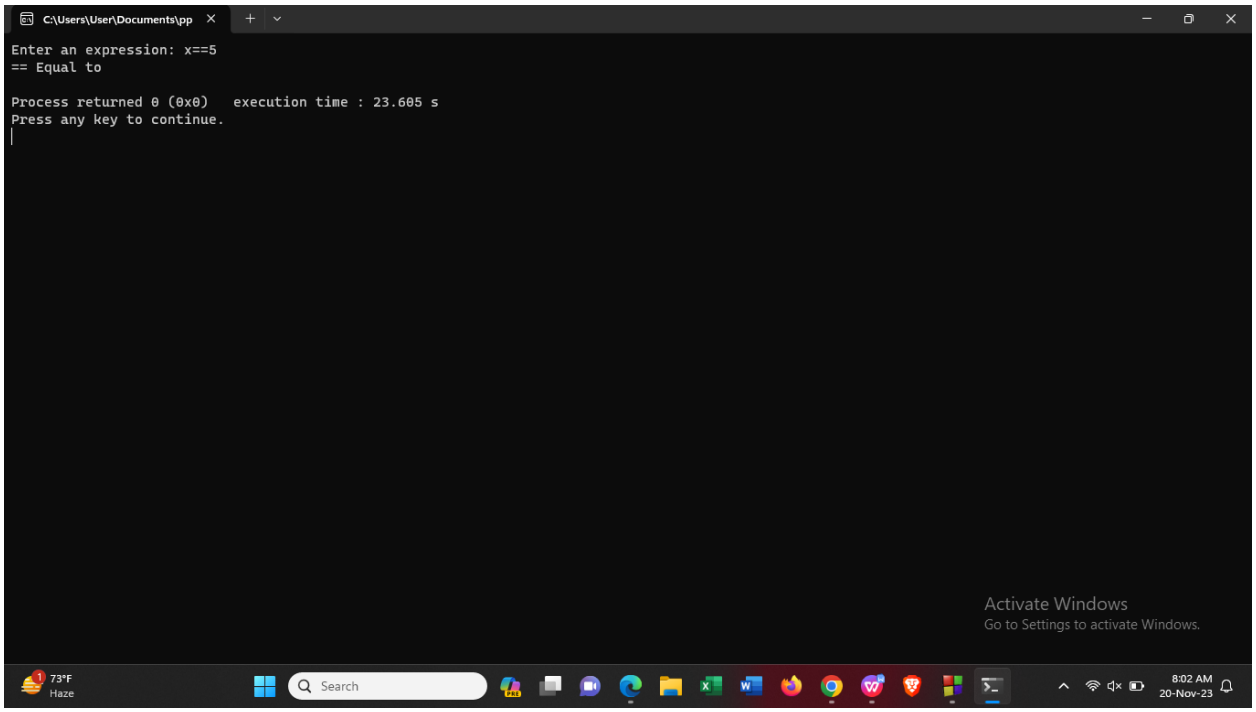
Code:

```
#include <iostream>
#include <string>

int main() {
    // Get input expression
    std::cout << "Enter an expression: ";
    std::string expression;
    std::getline(std::cin, expression);

    // Define the set of relational operators
    const std::string relationalOperators[] = { "==", "!=", "<", ">", "<=", ">=" };

    // Scan each character in the expression
    for (size_t i = 0; i < expression.length(); ++i) {
        // Check if the current character is an operator
        for (const auto& op : relationalOperators) {
            if (expression.compare(i, op.length(), op) == 0) {
                // Print the identified operator and its label
                std::cout << op << " ";
                if (op == "==")
                    std::cout << "Equal to";
                else if (op == "!=")
                    std::cout << "Not equal to";
                else if (op == "<")
                    std::cout << "Less than";
                else if (op == ">")
                    std::cout << "Greater than";
                else if (op == "<=")
                    std::cout << "Less than or equal to";
                else if (op == ">=")
                    std::cout << "Greater than or equal to";

                std::cout << std::endl;

                // Move the index to the end of the identified operator
                i += op.length() - 1;
                break;
            }
        }
    }

    return 0;
}
```

Output:


C:\Users\User\Documents\pp
Enter an expression: x==5
== Equal to
Process returned 0 (0x0)   execution time : 23.605 s
Press any key to continue.
Activate Windows
Go to Settings to activate Windows.
73°F
Haze
Search
8:02 AM
20-Nov-23