Question 1:

```cpp
#include <bits/stdc++.h>

int main() {
    std::string inputStr;


    std::stack<int> st;
    int first;
    int second;
    int inputValue;
    bool cont = true;
    std::string condition;

    std::string token;



    while (cont) {

        cont = false;

        std::cout << "Enter a postfix expression with a $ at the end: \n";
        std::getline(std::cin, inputStr);
        std::stringstream ss(inputStr);

        while (ss >> token) {

            if (isdigit(token[0])) {
                st.push(std::stoi(token));
            }

            else if (token == "-") {
                first = st.top();
                st.pop();
                second = st.top();
                st.pop();
                st.push(second - first);
            }

            else if (token == "+") {
                first = st.top();
                st.pop();
```

```cpp
                second = st.top();
                st.pop();
                st.push(second + first);
            }

            else if (token == "*") {
                first = st.top();
                st.pop();
                second = st.top();
                st.pop();
                st.push(second * first);
            }

            else if (token == "/") {
                first = st.top();
                st.pop();
                second = st.top();
                st.pop();
                st.push(second / first);
            }

            else if (token == "$") {
                break;
            }

            else {
                std::cout << "Enter the value of " << token << ": ";
                std::cin >> inputValue;
                st.push(inputValue);
            }
        }
        std::cout << "Expression's value is " << st.top() << std::endl;
        std::cout << "CONTINUE(y/n)? ";
        std::cin >> condition;
        if (condition == "y") {
            cont = true;
            while (!st.empty()) {
                st.pop();
            }
            std::cin.ignore(std::numeric_limits<std::streamsize>::max(), '\n');
        }
    }
    return 0;
}
```

```
alexanderkoo@LAPTOP-O50F50L5:/mnt/c/Users/Alexander
Enter a postfix expression with a $ at the end:
20 jerry 45 + tom - * $
Enter the value of jerry: 10
Enter the value of tom: 5
Expression's value is 1000
CONTINUE(y/n)? y
Enter a postfix expression with a $ at the end:
myscore yourscore 45 + 100 + * $
Enter the value of myscore: 3
Enter the value of yourscore: 5
Expression's value is 450
alexanderkoo@LAPTOP-O50F50L5:/mnt/c/Users/Alexander
```

Question 2:

```cpp
#include <bits/stdc++.h>

int main() {
    int table[4][3] = {
        {0, 2, 1},
        {3, 2, 1},
        {2, 3, 2},
        {3, 3, 3}
    };

    std::string inputStr;
    std::string variable;
    std::string equalSign;
    std::cin >> variable >> equalSign >>inputStr;
    int finState = 2;
    int currState = 0;


    for (auto i : inputStr) {
        if (i == 'a') {
            currState = table[currState][0];
        }
        else if (i == 'b') {
            currState = table[currState][1];
        }
        else if (i == 'c') {
            currState = table[currState][2];
        }
        else if (i == '$') {
            break;
        }
    }

    if (currState == finState) {
        std::cout << variable << " is Valid" << std::endl;
    }
    else {
        std::cout << variable << " is Invalid" << std::endl;
    }
}
```

```
alexanderkoo@LAPTOP-O50F50
NIVERSITY, FULLERTON/COMPI
W1 = bac
W1 is Valid
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W2 = aabaaa
W2 is Valid
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NIVERSITY, FULLERTON/COMPI
W3 = baaccb
W3 is Invalid
alexanderkoo@LAPTOP-O50F50
NIVERSITY, FULLERTON/COMPI
```