

Question1.cpp

```
1  #include <iostream>
2  #include <string>
3
4  using namespace std;
5
6  class stack
7  {
8      float arr[20];
9      int top = -1;
10
11  public:
12      stack()
13      {
14          for (int i = 0; i < 20; i++)
15          {
16              arr[i] = 0;
17          }
18      }
19      bool full()
20      {
21          return top == 19;
22      }
23      bool empty()
24      {
25          return top == -1;
26      }
27
28      void push(float value)
29      {
30          if (!full())
31          {
32              top++;
33              arr[top] = value;
34          }
35          else
36          {
37              cout << "Array is Full.\n";
38              return;
39          }
40      }
41      float pop()
42      {
43          if (!empty())
44          {
45              int temp = arr[top];
46              top--;
47              return temp;
48          }
49          else
50          {
51              cout << "Array is Empty.\n";
52              return -1;
53          }
54      }
55  }
```

```
54     }
55 };
56
57 float solveeq(stack &obj, string exp)
58 {
59     string curr = "";
60     for (int i = 0; i < exp.length(); i++)
61     {
62         curr = exp[i];
63         if (curr >= "0" && curr <= "9")
64         {
65             obj.push(stoi(curr));
66         }
67         else if (exp[i] == '+')
68         {
69             float temp = obj.pop();
70             obj.push(obj.pop() + temp);
71         }
72         else if (exp[i] == '-')
73         {
74             float temp = obj.pop();
75             obj.push(obj.pop() - temp);
76         }
77         else if (exp[i] == '/')
78         {
79             float temp = obj.pop();
80             obj.push(obj.pop() / temp);
81         }
82         else if (exp[i] == '*')
83         {
84             float temp = obj.pop();
85             obj.push(obj.pop() * temp);
86         }
87         else
88         {
89             cout << "Invalid Character!" << endl;
90         }
91     }
92     return obj.pop();
93 }
94
95 int main()
96 {
97     string exp;
98     stack e;
99     cout << "Enter Postfix Expression without Exponents (Numbers will be read as Single Digits and
as INTEGERS): \n";
100     cin >> exp;
101     cout << "Answer of your Expression: " << solveeq(e, exp) << endl;
102 }
```