SQA Assignment 4 - Summer 2021

Due: 11:59PM, Friday, 6/11

Problem Descriptions:

The purpose of this assignment is to reinforce the lecture material on program slice. For each of the source code fragments below, list the program slice for the variable indicated. (include the braces to make sure the program is executable.) Each problem is worth 50 points.

Problem 1:

For the following program, list the program slice by ONLY USING LINE NUMBERS for “type” in statement 18.

```
1       #include <iostream>
2       using namespace std;
3       int main() {
4               int type;
5               int lowVowel;
6               int upperVowel;
7               char c;
8               cout << "Enter an alphabet: ";
9               cin >> c;
10              lowVowel = (c == 'a' || c == 'e' || c == 'i' || c == 'o' || c == 'u');
11              upperVowel = (c == 'A' || c == 'E' || c == 'I' || c == 'O' || c == 'U');
12              if (lowVowel || upperVowel) {
13                      cout << c << " is a vowel.";
14              }
15              else {
16                      cout << c << " is a consonant.";
17              }
18              if (lowVowel) type = 1;
19              if (upperVowel) type = 2;
20              return 0;
21      }
```

Lines 4, 5, 6, 7, 9, 10, 11, 18 & 19

Problem 2:

For the following program, list the program slice by ONLY USING LINE NUMBERS for "PassRate" in statement 29.

```
1.  int exam() {
2.      A = 0;
3.      B = 0;
4.      C = 0;
5.      Fail = 0;
6.      Count = 0;
7.      TotalMarks = 0;
8.      while (!eof()) {
9.          scanf("%d", Mark);
10.         if (Mark >= 90) {
11.             A = A + 1;
12.         } else if (Mark >= 80) {
13.             B = B + 1;
14.         } else if (Mark >= 60) {
15.             C = C + 1;
16.         }
17.         if (Mark < 60)
18.             Fail = Fail + 1;
19.         Count = Count + 1;
20.         TotalMarks = TotalMarks + Mark;
21.     }
22.     printf("Out of %d, %d passed and %d failed\n", Count, A + B + C, Fail);
23.     printf("%d students got A", A);
24.     printf("%d students got B", B);
25.     printf("%d students got C", C);
26.     average = TotalMarks / Count;
27.     printf("The average was %d\n", average);
28.     PassRate = (Count - Fail) / Count * 100;
29.     printf("This is a pass rate of %d\n", PassRate);
30.     return 0;
31. }
```

Lines 5, 6, 8, 9, 17, 18, 19, 28, & 29