

One submission per group (2 students) **SE185: Problem Solving in**

Software Engineering

Quiz #4 (100 points)

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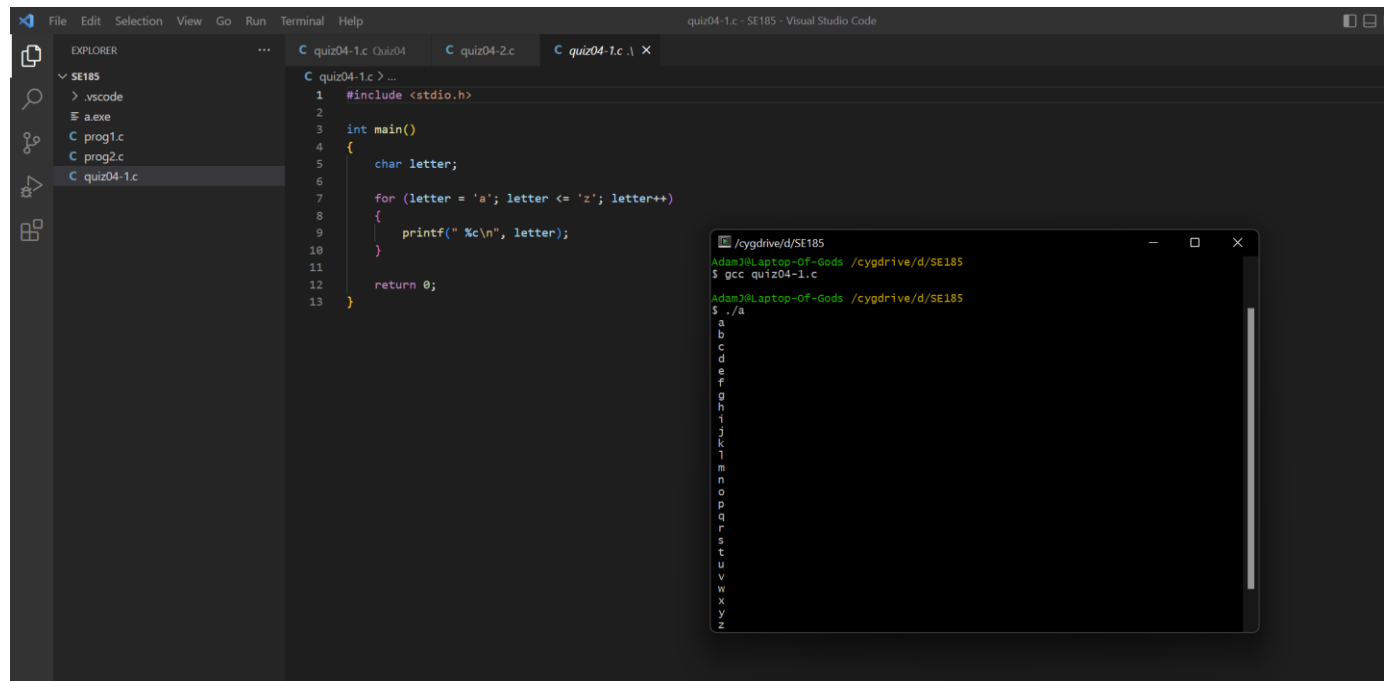
Answer the following questions and make a pdf file that includes the **source code, sample inputs, and outputs**. You must submit the **pdf file and all of the .c files** on Canvas for full credit. Do not forget to add your group partner name on the pdf file and the source codes.

1. (50 points) The following program prints the alphabet in lower case from 'a' to 'z'. Rewrite it using a for loop instead. Remember that chars can be referenced by their ASCII codes.

```
#include<stdio.h>

int main() {

    char letter = 'a';
    while(letter <= 'z') {
printf("%c\n" , letter);
letter++;
    }
    return 0;
}
```



The screenshot shows the Visual Studio Code editor with a C program named `quiz04-1.c` open. The program is a simple loop that prints all lowercase letters from 'a' to 'z' on separate lines. The Explorer sidebar on the left shows the file structure with `quiz04-1.c` selected. The Output window on the right shows the execution results, displaying the alphabet from 'a' to 'z'.

```
1 #include <stdio.h>
2
3 int main()
4 {
5     char letter;
6
7     for (letter = 'a'; letter <= 'z'; letter++)
8     {
9         printf("%c\n", letter);
10    }
11
12    return 0;
13 }
```

```
/cygdrive/d/SE185
Adam@Laptop-Of-Gods /cygdrive/d/SE185
$ gcc quiz04-1.c
Adam@Laptop-Of-Gods /cygdrive/d/SE185
$ ./a
a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
s
t
u
v
w
x
y
z
```

(50 points) Many user-created passwords are simple and easy to guess. Write a program that takes a simple password and makes it stronger by replacing characters using the key below, and by appending "!" to the end of the input string. You may assume that the string does not contain spaces and will always contain less than 50 characters.

- i becomes l
- a becomes @
- m becomes M
- B becomes 8
- s becomes \$

Sample Inputs and outputs format:

The image shows a Visual Studio Code editor with a C program named `quiz04-2.c` open. The program is designed to validate a password based on specific criteria and then update it. The code is as follows:

```
5 int main()
6 {
7     char userPass[50];
8     char Pass[50];
9     char a = '!';
10    int i;
11
12    printf("Please enter a password: ");
13    scanf("%s", userPass);
14
15    strcpy(Pass, userPass);
16
17    for (i = 0; i < strlen(userPass); i++)
18    {
19        if (userPass[i] == 'i')
20        {
21            Pass[i] = '1';
22        }
23        else if (userPass[i] == 'a')
24        {
25            Pass[i] = '@';
26        }
27        else if (userPass[i] == 'm')
28        {
29            Pass[i] = 'M';
30        }
31        else if (userPass[i] == 'B')
32        {
33            Pass[i] = '8';
34        }
35        else if (userPass[i] == 's')
36        {
37            Pass[i] = '$';
38        }
39        else
40        {
41            Pass[i] = userPass[i];
42        }
43    }
44    strncat(Pass, &a, 1);
45
46    printf("Your updated password: %s", Pass);
```

A terminal window is open, showing the compilation and execution of the program:

```
Adam@Laptop-0F-Gods /cygdrive/d/SE185/Quiz04
$ gcc quiz04-2.c -o test
$ ./test
Please enter a password: mypassword
Your updated password: Myp@$word!
Adam@Laptop-0F-Gods /cygdrive/d/SE185/Quiz04
$ ./test
Please enter a password: thismustbestrong
Your updated password: th1$u$te$tr0ng!
```