

Cop 2271: Introduction to Computation and Programming Assignment#4

Possible Points: 50

Problem 1 (10 pts):

1. Ask the user to enter a value between 1 and 100.
2. If the value is out of the range, print **"Invalid input"**
3. Take the number entered and %4, make sure to store it as a variable.
4. If the variable is equal to 0, print **"You won!"**
5. If the variable is equal to 1 or 2, print **"It is a tie!"**
6. If the variable is equal to 3, print **"You lose!"**
7. Make sure if, else if and else are used.

Here are some sample runs:

```
Enter a number between 1 and 100: 0  
Invalid input
```

```
Enter a number between 1 and 100: 101  
Invalid input
```

```
Enter a number between 1 and 100: 11  
You lose!
```

```
Enter a number between 1 and 100: 13  
It is a tie!
```

```
Enter a number between 1 and 100: 8  
You won!
```

Problem 1 Code Output:

```
❏ ./main
Enter a number between 1 and 100: 1000
INVALID INPUT
❏ █
```

```
❏ ./main
Enter a number between 1 and 100: 48
You won!
❏ █
```

```
❏ ./main
Enter a number between 1 and 100: 54
It is a tie!
❏ █
```

```
❏ ./main
Enter a number between 1 and 100: 27
You lose!
❏ █
```

Problem 2 (12.5 pts):

1. Ask the user to enter a lowercase letter.
2. If the letter is equal to 'a', 'e', 'i', 'o', or 'u' print "You have entered a vowel."
3. If the user entered the letter 'y' print "You may have entered a vowel."
4. Otherwise, print **"You have entered a consonant"**
5. You can use individual if/else if/else statements. Bonus: if you use compound logic instead you can earn 5 bonus points.

Here are some sample runs:

```
Enter a lowercase character: e
You entered a vowel!
```

```
Enter a lowercase character: h
You entered a consonant!
```

```
Enter a lowercase character: y
You may have entered a vowel!
```

Problem 2 Code Output:

```
❏ ./main
Enter a lowercase letter: i
You entered a vowel!
❏ 
❏ ./main
Enter a lowercase letter: k
You entered a consonant!
❏ 
❏ ./main
Enter a lowercase letter: y
You may have entered a vowel!
❏ 
```

Problem 3 (12.5 pts):

1. Ask the user to enter two characters, store each to different variables.
2. Using a while loop, start at the lowest character entered and print all characters between the two characters entered.
 - a. You may include the two characters that were entered if you wish.

Here is a sample run:

```
Enter two characters: a
h
a and h
Currently on a
Currently on b
Currently on c
Currently on d
Currently on e
Currently on f
Currently on g
Currently on h
```

Problem 3 Code Output:

```
➤ ./main
Enter a character: a
Enter another character: m

Cycling all characters between a and m

Currently on: a
Currently on: b
Currently on: c
Currently on: d
Currently on: e
Currently on: f
Currently on: g
Currently on: h
Currently on: i
Currently on: j
Currently on: k
Currently on: l
Currently on: m
➤ █
```

```
Enter a character: z
Enter another character: g

Cycling all characters between g and z

Currently on: g
Currently on: h
Currently on: i
Currently on: j
Currently on: k
Currently on: l
Currently on: m
Currently on: n
Currently on: o
Currently on: p
Currently on: q
Currently on: r
Currently on: s
Currently on: t
Currently on: u
Currently on: v
Currently on: w
Currently on: x
Currently on: y
Currently on: z
➤ █
```

```
➤ ./main
Enter a character: d
Enter another character: d

Cycling all characters between d and d

Currently on: d
➤ █
```

Problem 4 (15 pts):

1. Using a while (or do-while) loop, and if/else, prompt the user to enter a number between 1 and 4.

```
Please choose from one of the following:  
1-Print smiley  
2-Enter favorite number  
3-Enter hated number  
4-Quit
```

2. If the user enters 1, print an ASCII smiley face.

```
1  
:D
```

3. If the user enters 2, prompt the user to enter their favorite number, then store the number in a variable.
 - a. If the user has already entered their least favorite number provide the results of the two numbers summed together in a meaningful message.

```
Please choose from one of the following:  
1-Print smiley  
2-Enter favorite number  
3-Enter hated number  
4-Quit  
2  
Enter your favorite number: 777  
The sum of your favorite and hated numbers is: 790
```

4. If the user enters 3, ask them to enter their least favorite number between 1 and 100. Store the value in a variable.
 - a. If the user has already entered their favorite number provide the results of the two numbers summed together in a meaningful message.

```
Please choose from one of the following:  
1-Print smiley  
2-Enter favorite number  
3-Enter hated number  
4-Quit  
3  
Enter your least favorite number: 13  
The sum of your favorite and hated numbers is: 790
```

5. If the user enters 4, then quit the program (exit the while loop).
6. Should the user enter an invalid option, print a message asking the user to enter a valid option. (Do not leave the loop).

```
5
You entered an invalid option! Please enter 1-4.
```

Problem 4 Code Output:

```
❖ ./main
Please choose from one of the following:
1-Print smiley
2-Enter favorite number
3-Enter hated number
4-Quit
1
:D

Please choose from one of the following:
1-Print smiley
2-Enter favorite number
3-Enter hated number
4-Quit
4
Bye bye!
❖ █
```

```
❖ ./main
Please choose from one of the following:
1-Print smiley
2-Enter favorite number
3-Enter hated number
4-Quit
2
Enter your favorite number: 487

Please choose from one of the following:
1-Print smiley
2-Enter favorite number
3-Enter hated number
4-Quit
3
Enter your least favorite number: 76
The sum of your favorite and hated numbes is: 563

Please choose from one of the following:
1-Print smiley
2-Enter favorite number
3-Enter hated number
4-Quit
7
You entered an invalid option! Please enter 1-4

Please choose from one of the following:
1-Print smiley
2-Enter favorite number
3-Enter hated number
4-Quit
4
Bye bye!
❖ █
```