Loops Programming Exercises

1. Write a program named **MathTutor01** that allows the user to answer a random generated math addition question. Limit the random numbers to a value from 1 to 99. After the user enter their answer display a message indicating if the user is correct or incorrect. Your program must handle invalid inputs. Here are some sample runs:

```
C:\Work\_CPSC1012\LoopsProgramming-1\bin\Debug\LoopsProgramming-1.exe
What is 57 + 68 = ? :
Invalid input! You You must enter an integer value for the answer.
What is 57 + 68 = ? : abc
Invalid input! You You must enter an integer value for the answer.
What is 57 + 68 = ? : 45.5
Invalid input! You You must enter an integer value for the answer.
What is 57 + 68 = ? : 100
Incorrect! The correct answer is 125.
```

```
C:\Work\_CPSC1012\LoopsProgramming-1\bin\Debug\LoopsProgramming-1.exe
What is 14 + 29 = ? : 50
Incorrect! The correct answer is 43.
```

```
C:\Work\_CPSC1012\LoopsProgramming-1\bin\Debug\LoopsProgramming-1.exe
What is 33 + 97 = ? : 130
Correct!
```

2. Write a program named **MathTutor02** that is a modification of **MathTutor01** that allows for multiple attempts to answer the question. If the user answers the question correctly display the number of attempts to answer the question correctly. Here are some sample runs:

```
C:\Work\_CPSC1012\LoopsProgramming-2\bin\Debug\LoopsProgramming-2.exe
What is 76 + 97 = ? :
Invalid input! You You must enter an integer value for the answer.
What is 76 + 97 = ? : abc
Invalid input! You You must enter an integer value for the answer.
What is 76 + 97 = ? : 160
Incorrect! Would you like to try again (y/n)? y
What is 76 + 97 = ? : 180
Incorrect! Would you like to try again (y/n)? y
What is 76 + 97 = ? : 173
Correct! You got the correct answer in 3 attempts.
```

```
C:\Work\_CPSC1012\LoopsProgramming-2\bin\Debug\LoopsProgramming-2.exe
What is 56 + 43 = ? : 95
Incorrect! Would you like to try again (y/n)? y
What is 56 + 43 = ? : 96
Incorrect! Would you like to try again (y/n)? n
The correct answer is 99.
```

3. Write a program named **MathTutor03** that is a modification of **MathTutor02** that allows the user to answer multiple addition questions. Here is a sample run:

```
C:\Work\_CPSC1012\LoopsProgramming-3\bin\Debug\LoopsProgramming-3.exe
Question #1: What is 82 + 14 = ? : 96
Correct!
Would you like another question (y/n): y
Question #2: What is 10 + 71 = ? : 81
Correct!
Would you like another question (y/n): y
Question #3: What is 82 + 81 = ? : 160
Incorrect! Would you like to try again (y/n)? y
Question #3: What is 82 + 81 = ? : 165
Incorrect! Would you like to try again (y/n)? n
The correct answer is 163.
Would you like another question (y/n): y
Question #4: What is 31 + 50 = ? : 81
Correct!
Would you like another question (y/n): n
Thanks for playing! You answered 3 out of 4 questions correctly.
```

4. Write a program named **MathTutor04** that is a modification of **MathTutor03** that allows the user to select the type of math question (addition, subtraction, multiplication, or division). Here are some sample runs:

```
C:\Work\_CPSC1012\LoopsProgramming-4\bin\Debug\LoopsProgramming-4.exe                    ▭    —    □    ✕

Math Tutor - Version 0.4
-----------------------
a) Addition
s) Subtraction
m) Multiplication
d) Division
x) Exit Program
Enter a letter for your choice: a
What is 67 + 59 = ? 126
Correct!

Math Tutor - Version 0.4
-----------------------
a) Addition
s) Subtraction
m) Multiplication
d) Division
x) Exit Program
Enter a letter for your choice: s
What is 33 - 91 = ? -58
Correct!

Math Tutor - Version 0.4
-----------------------
a) Addition
s) Subtraction
m) Multiplication
d) Division
x) Exit Program
Enter a letter for your choice: m
What is 74 * 95 = ? 6400
Incorrect! Would you like to try again (y/n)? n
The correct answer is 7030

Math Tutor - Version 0.4
-----------------------
a) Addition
s) Subtraction
m) Multiplication
d) Division
x) Exit Program
Enter a letter for your choice: x
Goodbye and thanks for playing!
```

```
C:\Work\_CPSC1012\LoopsProgramming-4\bin\Debug\LoopsProgramming-4.exe                    ▭    —    □    ✕

-----------------------
a) Addition
s) Subtraction
m) Multiplication
d) Division
x) Exit Program
Enter a letter for your choice: d
What is 73 / 76 = ? 0.96
Incorrect! Would you like to try again (y/n)? n
The correct answer is 0.960526315789474

Math Tutor - Version 0.4
-----------------------
a) Addition
s) Subtraction
m) Multiplication
d) Division
x) Exit Program
Enter a letter for your choice: d
What is 50 / 36 = ? 1.3888888888888888888888888888889
Correct!

Math Tutor - Version 0.4
-----------------------
a) Addition
s) Subtraction
m) Multiplication
d) Division
x) Exit Program
Enter a letter for your choice: x
Goodbye and thanks for playing!
```