

# Homework 03

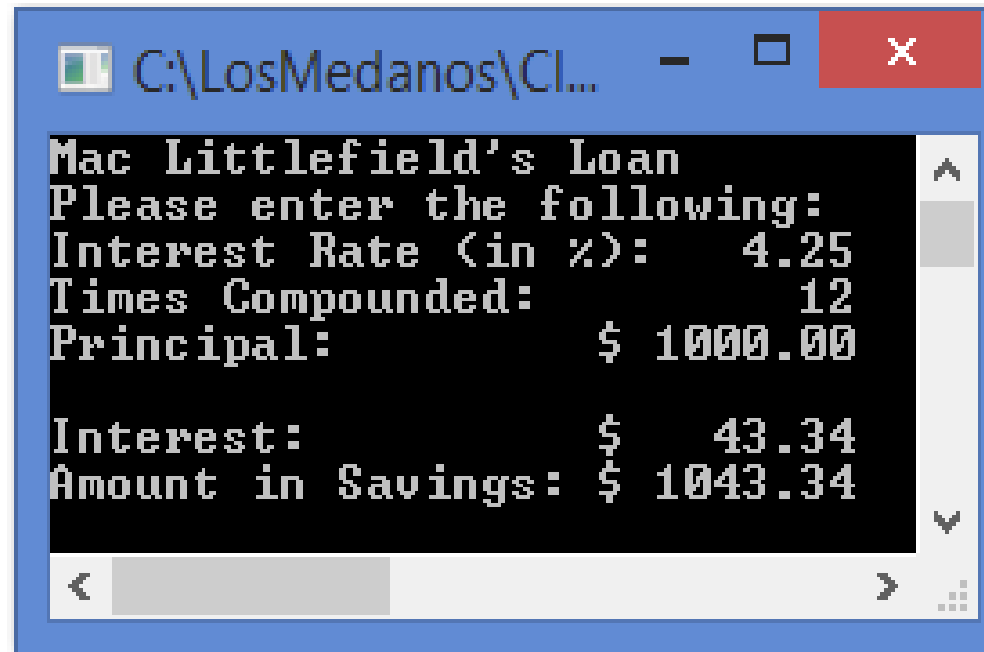
CS-102

# Homework 3A

- Assuming there are no deposits other than the original investment, the balance in a savings account after one year may be calculated as:
- $\text{Amount} = \text{Principal} * (1 + \text{Rate}/T)^T$ 
  - Principal is the balance in the savings account,
  - Rate is the interest rate,
  - T is the number of times the interest is compounded during a year (T is 4 if the interest is compounded quarterly).
- Write a program that asks for:
  - The principal,
  - The interest rate,
  - The number of times the interest is compounded.

# Homework 3A

- It should display a report exactly like that shown below (except using your name). [Hint: You will need to use formatting Manipulators]:



A screenshot of a Windows command prompt window. The title bar shows the path 'C:\LosMedanos\Cl...'. The window contains a text-based report for 'Mac Littlefield's Loan'. The report asks for input and displays calculated values for interest rate, compounding times, principal, interest, and total savings amount.

```
Mac Littlefield's Loan
Please enter the following:
Interest Rate (in %):    4.25
Times Compounded:       12
Principal:               $ 1000.00

Interest:                $   43.34
Amount in Savings:      $ 1043.34
```

- Call your program: *YourName\_Hwrk03A.cpp*

# Homework 3B

- Write a program that can be used as a math tutor for a young student. The program should display two random numbers to be added, such as:

$$\begin{array}{r} 247 \\ + 129 \\ \hline \end{array}$$

- The program should then pause while the student works out the problem. When the student is ready to check the answer, she or he can press a key and the program will display the correct solution:

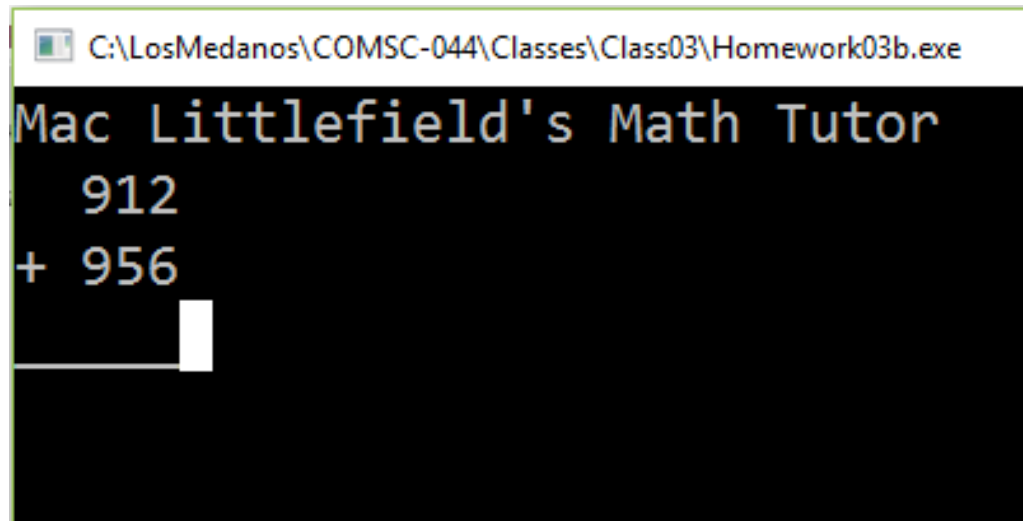
$$\begin{array}{r} 247 \\ + 129 \\ \hline 376 \end{array}$$

# Homework 3B

- Pay particularly close attention to the formatting and spacing. Everything should be lined up exactly as indicated. Call your program: *YourName\_Hwrk03B.cpp*
- Make your pseudo-random numbers range in value between 1 and 1000.
- Shown on the next page are two examples. However, when you write the program, use your name, for the Math Tutor, rather than mine.

# Homework 3B – Sample Results

- Case A – Initial Screen

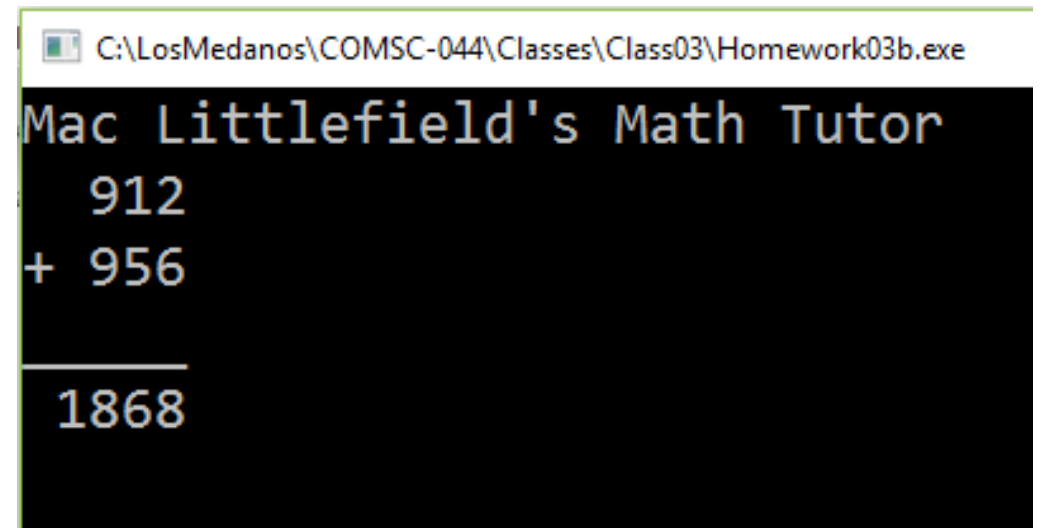


A screenshot of a Windows command prompt window titled "C:\LosMedanos\COMSC-044\Classes\Class03\Homework03b.exe". The window displays the text "Mac Littlefield's Math Tutor" in a monospaced font. Below this, the numbers "912" and "+ 956" are shown, followed by a horizontal line and a cursor. The background is black.

```
C:\LosMedanos\COMSC-044\Classes\Class03\Homework03b.exe
Mac Littlefield's Math Tutor
  912
+ 956
-----

```

- Case A – Final Screen after Entry



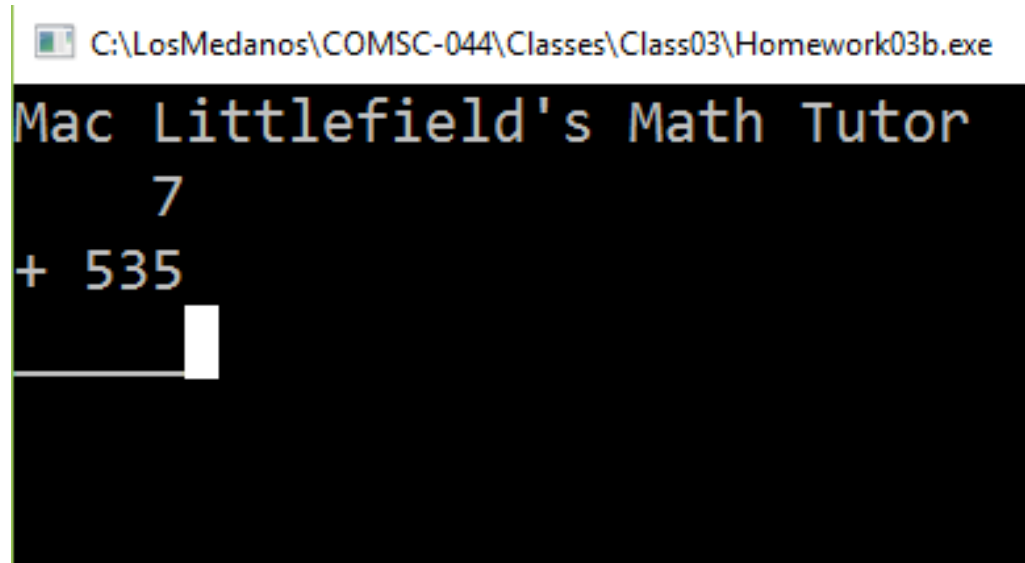
A screenshot of a Windows command prompt window titled "C:\LosMedanos\COMSC-044\Classes\Class03\Homework03b.exe". The window displays the text "Mac Littlefield's Math Tutor" in a monospaced font. Below this, the numbers "912" and "+ 956" are shown, followed by a horizontal line and the result "1868". The background is black.

```
C:\LosMedanos\COMSC-044\Classes\Class03\Homework03b.exe
Mac Littlefield's Math Tutor
  912
+ 956
-----
1868

```

# Homework 3B – Sample Results

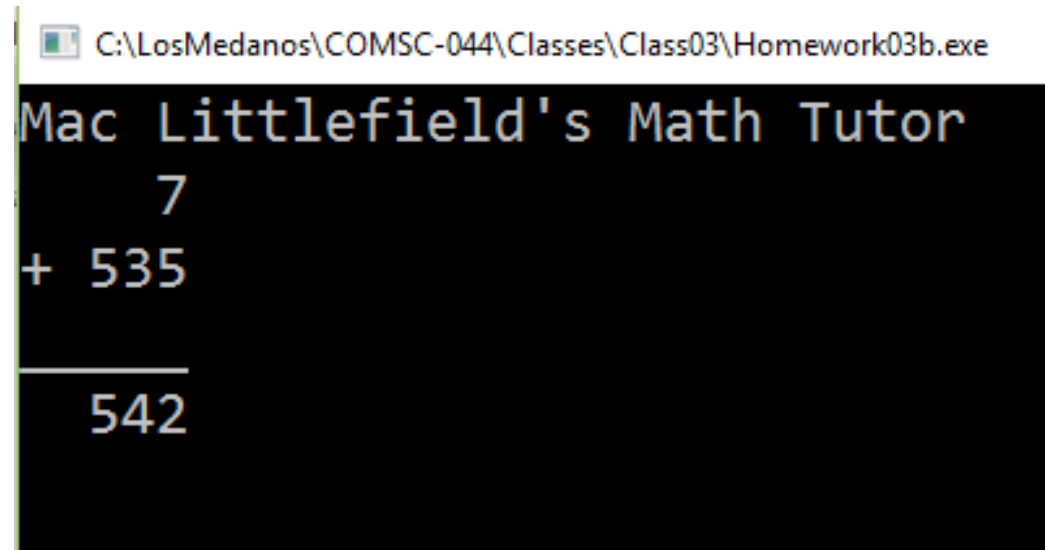
- Case B – Initial Screen



```
C:\LosMedanos\COMSC-044\Classes\Class03\Homework03b.exe
Mac Littlefield's Math Tutor
  7
+ 535
____

```

- Case B – Final Screen after Entry



```
C:\LosMedanos\COMSC-044\Classes\Class03\Homework03b.exe
Mac Littlefield's Math Tutor
  7
+ 535
____
542

```