

## Object-Oriented Programming Homework #1

Jan 20<sup>th</sup>, 2023

## Introduction to C++

1. Write a program that reads names for four heroes (Warrior, Mage, Ninja, and Fighter) and draws frames around these names. All frames must have equal width and height.

- 1.1) Draw frames using '\*' like the example output *Program Output (for 1.1)* shown on the right:

```

*****
*                               *
* Warrior: Squall * Mage:   Rinoa *
*                               *
*****
*                               *
* Ninja:   Selphie * Fighter: Zell *
*                               *
*****

```

- 1.2) Draw frames using '+', '-', '=', and '|' like the example output shown on the right: *Program Output (for 1.2)*

```

+-----+-----+
| Warrior: Squall | Mage:   Rinoa |
|               |               |
+-----+-----+
| Ninja:   Selphie | Fighter: Zell |
|               |               |
+-----+-----+

```

2. From the Fahrenheit to Celsius formula  $^{\circ}\text{C} = (5/9)(^{\circ}\text{F} - 32)$ , write programs to print the following tables:

2.1)

Fahr	Celcius
0	-17.8
20	-6.7
40	4.4
.....	
260	126.7
280	137.8
300	148.9

2.2)

Fahr	Celcius
0	-17.8
40	4.4
80	26.7
.....	
200	93.3
240	115.6
280	137.8

2.3)

Fahr	Celcius
300	148.9
280	137.8
260	126.7
.....	
40	4.4
20	-6.7
0	-17.8

You must draw a flow chart or write pseudocode before writing real programs.

3. Write a program that takes a value **N**, then draws **N** random number from range **[0, 1]**. Calculate the **mean squared error (MSE)** of the number drawn against **0.5**. You must draw a flowchart or write pseudocode before writing a real program.