

ME/MSE 241 Engineering Computations

Homework Assignment – 1

Instructions:

- 1) Include comments for every few lines (or even each line) of code as relevant.
- 2) Use a consistent naming convention for identifiers.
- 3) Do not hesitate to ask for help, there are no trivial questions!

Please include *comments* where appropriate. A comment is a part of the program that will be ignored by the interpreter or compiler. A comment's purpose to make the code readable for other programmers and communicate your intent.

In Python, comments begin with #. Any text that follows # until a newline is completely ignored. Check the below example.

```
# Simple Python program

# Creating a variable to store Pi value
# The above line is a comment; this line is too!
varPi = 3.14159

# Print a string
print("Hello World!") # Short comments only
```

Problem 1 (15 pts)

A first computer program as I mentioned during the lectures is a “Hello World” program. Write your “Hello World” program that prints to the screen (or outputs to a cell, if using Python notebooks) the following text:

1. Hello World!
2. I am *your name*.
3. My favorite *ME/MSE* topic is *thermodynamics*.
4. This program is running on an *Intel Core i7-1065G7* CPU with *16 GB* RAM.

Replace the italicized text with relevant information. You can obtain the CPU and memory information from either the Task Manager or System Information apps (only the latter for macOS from what I understand).

Problem 2 (15 + 20 pts)

- (a) Create a program that defines variables that are each initialized to some random value of one of the basic Python data types (i.e., *bool*, *int*, *float*, *complex*, and *str*). Choose one of the three naming conventions *snake_case*, *CamelCase* or *camelCase* for the identifiers (i.e., variable names). For example, see below:

```
# Integer data type
int_data = 20_000
# or use
IntData = -20_000
# or use
intData = 241
```

- (b) Use the type conversion functions, *bool*, *int*, *float*, *complex*, and *str* on each of these variables. Summarize your observations in a comment.