ITP 270 – Programming For Cybersecurity
Midterm Exam Practice Questions

Instructions:

The exam is based on Python 3. Ensure your laptop is configured properly.
You may ask one free question during the exam, but additional questions will cost you 5 points.
The exam is open book, open notes, open internet.

Task 1: Create a source file named Blocks.py, then enter and run the following code.

```
s = "Hello World!"

def main():
     print(s)
     t = "Hello Universe!"

print(t)


if __name__ == '__main__':
     main()
```

Task 1 Questions:

Did running the code produce an error? If so, explain why.

How would you correct the error?

Task 2: Modify Blocks.py to look like the following code snippet. Run the program and answer the following questions.

```
s = "Hello World!"

def main():
     print(s)
     t = "Hello Universe!"
     print(t)
     print(dir())

print(dir())

if __name__ == '__main__':
     main()
```

Task 2 Questions:

What's the purpose of the dir() built-in function?

Explain the output of calling dir() from the main() method.

How would you use the dir() function to list operations available on a string?

Task 3: Modify Blocks.py to look like the following code snippet:

```
s = "Hello World!"


def main():
        print(s)
        t = "Hello Universe!"
        print(t)


if __name__ == '__main__':
        main()
```

Task 3 Questions:

What statement could you add to the main() method to print the 7th character of the variable s? Make the modification to the code and run it.

What statement would you add to the main() method to print characters 3 through 8 of variable t? Make the modification to the code and run it.

Task 4: Edit Blocks.py so it looks like this:

```
def main():


if __name__ == '__main__':
     main()
```

Task 4 Subtasks/Questions:

Add a statement to the main() method that declares a list variable named presidents initialized with the following strings: “George Washington”, “John Adams”, “Thomas Jefferson”, “James Madison”. Add another statement to the main() method that prints the list of presidents to the console. Run the program.

What would be the easiest way to sort the list? Edit the program to implement your idea.

Add a statement to the main() method to print the sorted list to the console. Explain how you were able to sort the list.

Add the following presidents to the list: “James Monroe”, “John Quincy Adams”, “Andrew Jackson”. Sort the list again and print it to the console.

Task 5: Continuing with the code resulting from Task 4 above, create a new module named Utilities.py and create a class inside that module named Utilites that defines three methods: save_list_to_file, read_list_from_file, and append_president_to_file. The methods should perform as follows:

save_list_to_file – takes the name of the file and a list of strings and writes the list as a comma-delimited string to the file. Use a try/exception block to catch and print any exceptions that may occur. The method does not return a value.

read_list_from_file – takes the name of the file as a argument and reads the comma-delimited string from the file and converts it to a list of strings. Use a try/exception block and print any exceptions that occur. This method returns a list of strings.

append_president_to_file – takes the name of a file, and the name of a president, and appends the president’s name to the file. Use a try/exception block to catch and print any errors that may occur during file operations. This method does not return a value.

Task 5 Subtasks/Questions

Import the Utilities class into the Blocks module, and test each Utilities class method in the body of the main() method to include:

- Saving a list of presidents to a file
- Reading a list of presidents from a file
- Appending one or more president names to an existing file

What's the difference between a function and a method?

What's the purpose of the "self" keyword?