**GitHub Repository: https://github.com/HashAbdulla/SOS-Board-game**

**Sprint #0 Report**

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Instructions

**Objectives**

* Make decisions on the SOS software development project.
* Learn unit testing and GUI programming in the language of your choice.

**Deliverables and Grading Policy**

Read the “CS 449 Homework Overview” document **carefully** and make the key decisions for the software development. Use the following template to complete your report.

1. **Key Decisions of the SOS Project (2 points)**

|  |  |
| --- | --- |
| Object-oriented programming language | Python |
| GUI library (strongly encouraged) | Tkinter |
| IDE (Integrated Development Environment) | PyCharm |
| xUnit framework (e.g., JUnit for Java) | Pytest |
| Programming style guide (must read it carefully) | Google Python Style Guide |
| Project hosting site | Github.com |
| Other decisions if applicable | I want to have consistent naming conventions |

Sample programming style guides:

* Google Java Style Guide: <https://google.github.io/styleguide/javaguide.html>
* Google C++ Style Guide: <https://google.github.io/styleguide/cppguide.html>
* Google Python Style Guide: <https://google.github.io/styleguide/pyguide.html>

1. **Unit testing (4 points)**

Find a tutorial on the unit test framework you have chosen and write at least two xUnit tests of a program you have written or found elsewhere. Attach here (1) the screenshot of your program execution and (2) the source code of your program.

prime\_utils.py:  
  
1. # SPRINT 0 UNIT TESTING  
  
  
def is\_prime(n):  
 """Check if a number is prime."""  
 if n <= 1:  
 return False  
 if n <= 3:  
 return True  
 if n % 2 == 0 or n % 3 == 0:  
 return False  
 i = 5  
 while i \* i <= n:  
 if n % i == 0 or n % (i + 2) == 0:  
 return False  
 i += 6  
 return True

test\_prime\_utils.py:

1. import prime\_utils  
  
def test\_prime\_number():  
 assert prime\_utils.is\_prime(7) == True # 7 is prime  
  
def test\_non\_prime\_number():  
 assert prime\_utils.is\_prime(8) == False # 8 is not prime  
  
def test\_edge\_case\_zero():  
 assert prime\_utils.is\_prime(0) == False # 0 is not prime  
  
def test\_edge\_case\_one():  
 assert prime\_utils.is\_prime(1) == False # 1 is not prime

2.

A screenshot of a computer program

AI-generated content may be incorrect.

1. **GUI programming (4 points)**

Write a GUI program in the language you have chosen for your SOS project. The GUI of your program must include text, lines, a check box, and radio buttons. While you are recommended to consider the GUI for the SOS game board, it is not required. In this assignment, any GUI program of your own work is acceptable.

Attach here (1) the screenshot of your program execution and (2) the source code of your program.

sprint0-gui.py:

1. # NON FINAL GUI , STRICTLY FOR SPRINT 0  
  
import tkinter as tk  
  
def show\_choice():  
 choice\_label.config(text=f"Selected: {var.get()}")  
  
root = tk.Tk()  
root.title("SOS Sprint 0 GUI Demo")  
root.geometry("400x300")  
  
# Text  
title = tk.Label(root, text="SOS Project GUI Example", font=("Arial", 16))  
title.pack(pady=10)  
  
# Canvas with multiple lines  
canvas = tk.Canvas(root, width=300, height=150, bg="white")  
canvas.pack(pady=10)  
  
# Horizontal line  
canvas.create\_line(20, 30, 280, 30, fill="blue", width=2)  
  
# Vertical line  
canvas.create\_line(150, 10, 150, 140, fill="red", width=2)  
  
# Diagonal lines  
canvas.create\_line(20, 130, 280, 20, fill="green", width=2)  
canvas.create\_line(20, 20, 280, 130, fill="purple", width=2)  
  
# Checkbox  
check\_var = tk.IntVar()  
check = tk.Checkbutton(root, text="Enable Extra Feature", variable=check\_var)  
check.pack(pady=5)  
  
# Radio buttons  
var = tk.StringVar(value="None")  
radio1 = tk.Radiobutton(root, text="Option A", variable=var, value="A", command=show\_choice)  
radio2 = tk.Radiobutton(root, text="Option B", variable=var, value="B", command=show\_choice)  
radio1.pack()  
radio2.pack()  
  
# Label to show selected option  
choice\_label = tk.Label(root, text="Selected: None")  
choice\_label.pack(pady=10)  
  
root.mainloop()

A screenshot of a computer

AI-generated content may be incorrect.