

CMPE 202

Software Systems Engineering

Sections 47

Spring 2026
Instructor: Ron Mak

Assignment #7

Assigned: Wednesday, April 8
Due: Friday, April 17 at 5:30 PM
Team assignment, 200 points max

GUI-Based Rock-Paper-Scissors Game

Use **Qt6** to create a GUI-based version of your RPS game program from Assignment #6. The layout of your GUI interface is up to you, but the interface should be user-friendly and at least allow the user to:

- Set the computer player's choice algorithm (random or smart).
- Set the number of rounds for a game.
- Enter the human player's choice for each round.

During a game, the GUI interface should at least display:

- The current round number.
- What the human player chose for the round.
- The computer player's prediction of the human's choice for the round.
- The computer player's choice for the round.
- Who the winner is (or is it a tie) of the round.
- The number of human player and computer player wins and the number of ties after each round.

If you design your classes well using good encapsulation and design patterns, especially the Strategy Design Pattern, your one application should be runnable either in text mode (as in Assignment #6) or in GUI mode. Before the start of a game, you can prompt the user for the mode, or a command-line parameter can determine the mode.

Written report (10-12 pages)

- Describe how you handled inversion of control in your GUI mode.
- Include a screenshot of Qt Designer showing the layout of your GUI.
- Include a screenshot of your GUI while your application is running.
- Briefly describe how you were able to reuse code from Assignment #6. What (if anything) did you have to refactor to make both modes work?
- Instructions on how to run your application in text mode or in GUI mode.

What to turn in

Make a zip file of all your C++ source files and your report. Name the file after your team name. Submit it into Canvas: **Assignment #7**. This is a team assignment. Each member of the team will receive the same score.

Rubric

Your program will be graded according to these criteria:

Criteria	Max points
<ul style="list-style-type: none">• GUI components:<ul style="list-style-type: none">○ Allow the user to set the computer player's choice algorithm.○ Allow the user to set the number of rounds for a game.○ Allow the user to enter the human player's choice for each round.○ Display the current round number.○ Display the human player's choice for the round.○ Display the computer's prediction of the human player's choice for the round.○ Display the computer player's choice for the round.○ Display who the winner is (or is it a tie) of the round.○ Display the number of human and computer wins, and the number of ties.	<ul style="list-style-type: none">• 120<ul style="list-style-type: none">○ 20○ 20○ 20○ 10○ 10○ 10○ 10○ 10○ 10○ 10
<ul style="list-style-type: none">• GUI design (good layout and user-friendly)	<ul style="list-style-type: none">• 10
<ul style="list-style-type: none">• Overall code design	<ul style="list-style-type: none">• 30
<ul style="list-style-type: none">• Can successfully play games either in text mode or in GUI mode.	<ul style="list-style-type: none">• 20
<ul style="list-style-type: none">• Report	<ul style="list-style-type: none">• 20