

Grades 9-12

Distance Learning Module 8: Week of: May 26th - May 29th

Iteration and Simulation - Project

Introduction to Computer Science Honors - *Modified from [Unit 5 \(Iteration and Computer Simulation\)](#)*

Targeted Goals from Stage 1: Desired Results

Content Knowledge: what types of problems can be solved with iteration, the difference between pre- and post-test loops, how to calculate experimental probabilities using computer simulation, how to create a list, how to index into a list

Vocabulary: loop, iteration, loop counter, For Next, Do While, infinite loop, experimental probability, nested loops, "off by one" (OBO) errors, lists, permutation

Skills: writing loops using for and while, modeling events with random numbers and experimental probability

Expectation:

Description of Task (s):	Resources and Materials:	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
Monday: Holiday	Memorial Day	No School
Tuesday: Introduction to Roulette Simulation Project	Live instruction Students will be given starter code for an experimental probability simulation about the game of roulette. The rules of the game will be discussed, as will the requirements of the project.	RouletteProject.pdf roulette.py icsutils.py

Description of Task (s):	Resources and Materials:	Daily Checks (Return to Google Classroom or snapshots from a cell phone)
Wednesday: Students will continue working on the roulette simulation.	Live help sessions	RouletteProject.pdf roulette.py icsutils.py
Thursday: Students will continue working on the roulette simulation.	Live help sessions	RouletteProject.pdf roulette.py icsutils.py
Friday: Students will complete the roulette simulation.	Live instruction	RouletteProject.pdf roulette.py icsutils.py

Week criteria for success (attach student checklists or rubrics):

By the end of this module, students should be able to:

- use Python's random module to generate random numbers
- calculate the experimental probability of an event occurring
- write for and while loops to simulate multiple events
- write nested loops

Supportive resources and tutorials for the week (plans for re-teaching):

Think Python, 3rd Edition (free online Python book)

Coding Bat

Office hours

Python Programming Third Edition by John Zelle. This textbook provides additional examples and content, and is available for purchase from Amazon and other retailers.

Computer Science Trimester 1 Review Part 9 (Iteration Part A)

Computer Science Trimester 1 Review Part 10 (Iteration Part B)