COIS 4470H Winter 2023 – Lab 2

1. Develop a Monte Carlo simulation program to calculate an approximation π by considering the number of random points selected inside the quarter circle:

$$Q : x^2 + y^2 = 1, x \geq 0, y \geq 0,$$

where the quarter circle is taken to be inside the square:

$$S : 0 \leq x \leq 1 \text{ and } 0 \leq y \leq 1.$$

Use the equation: π/4 = (area Q)/(area S).

2. Using your program to fill in the following form:

Total random points generated	10^2	10^3	10^4	10^5	10^6
Value of π	2.92	3.192	3.1708	3.14276	3.14144