CS3315 Homework 05 due on 03/02/18 10:00pm

Please read the questions carefully before you start your work and write your answer clearly! Please ask the instructor any time if you don't understand the question or find any mistakes in the question.

Please answer the following questions using the *shell commands* we have learned in class! You will not receive any points if your methods are not those we have learned in class!!!

There is a sector inside a square as the following figure. The side length of the square is 1. The radius of the sector is 1. Please calculate the area of the sector in the square **using random simulation**.

Q1. Write Shell Commands to generate a random number from 0 to 1 (not including 1)

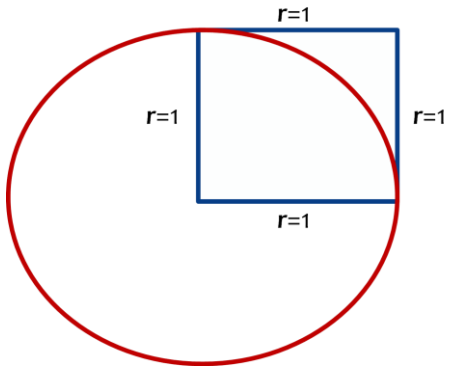
Q2. Write Shell Commands to generate any point in the given square (***R***=1). Hint: a point has coordinate (x, y)

Q3. Write Shell Commands to determine if the generated point is located in the sector or not. Hint: you may use formula $d = \sqrt{x^2 + y^2}$

Q4. Please calculate the area A of a sector in the square according to the derived equation

$$A = \frac{number\ of\ points\ in\ the\ sector}{total\ number\ of\ points\ in\ the\ square}$$

Hint: the total number of points in the square can be taken as 1000.



….

[1] you must answer each question as above

[2] you must provide a complete code (Shell Script) with this submission

….

Grading Criterion:

[1]. **The grade will be zero if the submitted file is not the correct file.**

[2]. **There will be zero points given if you directly use the area formula πr^2**
[3]. **There will be zero points given if you use other languages**
[4]. **10 points for each question above; 60 points for shell scripting code.**

How to turn in your assignment:

(1) Archive your folder HW05 using Windows file compress utility and name your compressed file as your **lastname_05.zip**. Log on to WTCLASS
(2) Click on '2018SP_CS_3315_01_Scripting Languages'
(3) Click on the left side item 'Lessons'. (The remaining steps are to upload your archived work into the drop box.)
(4) Click on 'Course Content' and then click on the drop box '**HW #5**.'
(5) Enter the title as '**HW # 5**' and click on 'Attachments'
(6) Click on 'Browse' and point to your saved and compressed work 'your_lastname_**05**.zip' (in step 1) and then click 'Open.' Next click 'Upload File' and wait for the remote server to upload your work. Then click 'Finished.'
(7) Click 'Submit.' Now you will get the message on the screen "Your submission has been received successfully." Click on 'Log Off' button on the left to exit from the submission site.