Practice 5

2018 second semester
Computer Engineering Programming
Palindromes

- A palindromic number reads the same both ways. The largest palindrome made from the product of two 2-digit numbers is $9009 = 91 \times 99$.

- Make `is_palindrome` function which get in input and return bool type

```python
is 123 palindrome? 0
is 131 palindrome? 1
is 142 palindrome? 0
is 14141 palindrome? 1
is 0 palindrome? 1
```
Lotto

• Make lotto which select 10 number

• Number range is from 1 to 20

• There should be no duplicate

• Print out 5 different lotto sequence

6  12  19  13  2  11  14  4  8  17
11  18  20  9  12  3  16  13  4  10
3  1  7  8  18  19  5  9  13  17
19  6  14  4  1  20  2  8  9  10
20  11  16  13  6  7  12  4  8  17
Monte Carlo PI approximation

• Approximate PI by Monte Carlo method

• What is monte carlo?
Monte Carlo PI approximation

• Get rand value range from 0 to 1 [0, 1] and assign that value to double x, y

• And check whether \( x^2 + y^2 \leq 1 \)

• If it is, it’s in circle, if not it’s not in circle

• Count total point and find ratio of (point in circle) / (total point)

• By this way you can approximate PI because you know approximate (area of circle) / 4
Monte Carlo PI approximation

• PI is $3.14159265358979323846$

• How to get random value [0, 1]?
  (double)rand() / RAND_MAX

• Difference Between pi and approximation should be less than 0.0000001

Started at 1539183594
Ended at 1539183598
Elapsed time is 4
Total iteration is 79970000
PI is $3.14159$
Approximation is 3.14159