LAB EXERCISE-1

Question1: - Comparison of different time complexities
a) Constant time — O (1): Write a function to calculate the square of a number.
Input: 4
Output: 16
b) Logarithmic time — O(logn): Write a function that halved the value of a number on each iteration of while loop. Print how many such iteration it took to reach 1.
Input: 38
Output: 5
c) Linear time — O(n): Write a program for linear search in array.
Input: (5, [5,6,12,4,2]), Search [4]
Output: 3 [Position]

Question2: - You are given an integer n. Count the sum of 1+2+...+n in O(n), $O(n^2)$.

Question3: - The program takes a number and checks whether it is a palindrome or not also find its complexity.
Input: 121
Output: The number is a palindrome!
Input: 123
Output: The number is not a palindrome!

Question 4: - Write a Program to Perform Matrix Multiplication also find its complexity.

Question 5: - Write a program to find a peak element in O(log n) time.