COMSATS Institute of Information Technology Abbottabad
Department of Computer Science

Lab Assignment No. 2

Algorithms and Data Structures

Practice Questions

Q1. A box of cookies can hold 24 cookies, and a container can hold 75 boxes of cookies. Write a program that prompts the user to enter the total number of cookies, the number of cookies in a box, and the number of cookie boxes in a container. The program then outputs the number of boxes and the number of containers to ship the cookies. Note that each box must contain the specified number of cookies, and each container must contain the specified number of boxes. If the last box of cookies contains less than the number of specified cookies, you can discard it and output the number of leftover cookies. Similarly, if the last container contains less than the number of specified boxes, you can discard it and output the number of leftover boxes.

Q2. Write a program which displays all prime numbers in the array given below:

int x[10] = {87,19,13,85,27,11,33,53,69,71};

Q3. Write a program in which one can insert an element at the location specified by the user.

Numbers in Array: ***10 20 30 40 50***
Enter location. ***2***
The element to be inserted is: ***99***
The out put look like as: ***10 20 99 30 40 50***

Q4. Repeat the Q10 which used to ***delete*** a specific number in the array**.**

Q5. Write an iterative function Power that takes in 2 integer value parameter base and exponent and return to the power of exponent. For example Power(2,3) returns 8. Make sure for every kind of validations.

Q6 . Find out 2^{nd} largest and 2^{nd} smallest in the list.

Q7. Write a program ***Array*** that display Fibonacci series of n number. For example if n=7 the generated output should look like:

1 1 2 3 5 8 13 so on

Q8. The population of a town A is less than the population of town B. However, the population of town A is growing faster than the population of town B. Write a program that prompts the user to enter the population and growth rate of each town. The program outputs after how many years the population of town A will be greater than or equal to the population of town B and the populations of both the towns at that time. (A sample input is: Population of town A 5000, growth rate of town A 4%, population of town B 8000, and growth rate of town B 2%)