

**LAB Assignment
DE 35
Syndicate A and B**

Submission date: 20th November 2013 (Wednesday).

INSTRUCTIONS:

You are required to submit assignment in Hard copies (hand written or printed form). Do not buy folders. Just stapler the solution and a cover page with your Reg. num, name, degree, department and Syndicate written on it.

No submission will be accepted after due date. Plagiarism in assignment will result in ZERO.

- 1. A positive integer n is said to be prime (or, "a prime") if and only if n is greater than 1 and is divisible only by 1 and n . For example, the integers 17 and 29 are prime, but 1 and 38 are not prime. Write a program that takes a number from user and detect if it is prime number or not.**

- 2. Write program that takes two positive integer arguments and calculates the greatest common divisor of those two integers. If number entered by user is not positive then the program should retake the value from user. For example
Greatest common divisor of 50 and 60 is 10.
Greatest common factor is 256 and 625 is 1.**

- 3. Write a program that prints the insurance fee to pay for a pet according to the following rules:**
 - A dog that has been neutered costs \$50.**
 - A dog that has not been neutered costs \$80.**
 - A cat that has been neutered costs \$40.**
 - A cat that has not been neutered costs \$60.**
 - A bird or reptile costs nothing.**
 - Any other animal generates an error message.**

The program should prompt the user for the appropriate information, using a code to determine the kind of animal (i.e. D or d represents a dog, C or c represents a cat, B or b represents a bird, R or r represents a reptile, and anything else represents some other kind of animal).

After printing the insurance fee, the program should ask the user if (s)he wants to insure another animal.

4. Write a program that produces a bar chart showing the population growth of Pakistan, at 20 yr intervals during the past 100 yrs. The program should read in population figures(rounded to the nearest 1000 people) for 1900, 1920, 1940, 1960, 1980, 2000. For each year it should display the date and bar consisting of one asterisk for each 1000 people.

It should display like this:

Plattsburgh Population Growth
(each * represents 1000 people)

```
1900 **
1920 ****
1940 *****
1960 *****
1980 *****
2000*****
```

The following is the population:

```
2157(1900)
4289(1920)
5317(1940)
7215( 1960)
10789(1980)
12984(2000).
```

5. 2. Write a program that input for students' final grades in a given class (the grades are integer values in the range 1-9) after each time the program prompts "Do you want enter more Grade Y/N :" until user press N. The program then displays the class grade average, the highest grade, and how many students in the class failed the course (a grade less than 4 is a failing grade).. An example running session looks as follow:

```
Enter student's grade:5
Do you want enter more Grade Y/N :y
Enter student's grade:6
Do you want enter more Grade Y/N :y
Enter student's grade:??
Invalid grade Input
Do you want enter more Grade Y/N :y
Enter student's grade:7
Do you want enter more Grade Y/N :n

Class average: 6
Highest grade: 7
Number of students that failed the course: 0
-
```