LAB TASKS FOR ALGORITHMS

TASK 1:- Implement algorithm to determine if a given year is a leap year.

1 Ask the user to input the year
2 Set the year equal to a
3 If the remainder of a by 400 is zero, then print “it is a leap year”.
4 If the remainder of a by 4 is zero then also check if the remainder of a by 100 is not zero, then print “it is a leap year”. Else print “it is not a leap year”
5 End

TASK 2:- Implement an algorithm to count the number of occurrences of each character in a given string

1. Generate an empty dictionary to store character counts.
2. Input the string.
3. Input the character that is to be counted.
4. Go through each character in the string
5. If the input character is not in the dictionary, add it to the dictionary and increment its counter by 1
6. If the input character is already in the dictionary, increase its counter by +1.
7. Go to the step 2 for each character in the string.
8. End.

TASK 3:- Write an algorithm to calculate x raised to the power y (i.e., x y) without using built-in power functions.

1. Ask the base from the user.
2. Ask the power from the user.
3. Set the answer as 1.
4. Set the answer to answer multiply by base.
5. Decrement power.
6. If power is not equal to 0, THEN go to step 4.
7. Display the answer.
8. End.

TASK 4:- Calculate the area of a circle given its radius r.

1. Store radius=r
2. Input radius from the user.
3. Calculate area=pie*r*r.
4. Display the area.
5. End

TASK 5:- Find the median of three given numbers.

1. Take 3 input numbers from the user
2. If number 1 is greater than or equal to number 2 and less than or equal to number 3 OR number 1 is greater than or equal to number 3 and less than or equal to number 2 THEN print “number 1 is the median.”
3. If number 2 is greater than or equal to number 1 and less than or equal to number 3 OR number 2 is greater than or equal to number 3 and less than or equal to number 1 THEN print “number 2 is the median.”
4. If number 3 is greater than or equal to number 1 and less than or equal to number 2 OR number 3 is greater than or equal to number 2 and less than or equal to number 1 THEN print “number 3 is the median.”
5. End.