Objective:

- To get a grip on problem solving based on sequence and selection structure.

Devise Solution of the following problems using Pseudo Code

1. Input four numbers and display sum of these.
2. Input marks of five subjects of a student and calculate its average.
3. Input radius of circle and calculate area of circle.
4. A painter wants to know the amount of paint needed to paint only the four walls. The chosen paint covers 100 square feet per gallon.
5. Bob would like to know what percentage of his income his rent is. Write a solution that would calculate and print this percentage.
6. Jim is going to replant his lawn. He would like to know how much the sod will cost, given cost of the sod and the length and width of two different lawn areas. Write a solution to calculate this cost.
7. Write pseudo code to calculate circumference of circle.
8. Write a program that input a number and prints a multiplication table for the entered number up to 10.
9. Take input from user about temperature in Celsius and display on screen the equivalent Fahrenheit temperature.
10. Calculate the pay of an employee, given the hours worked and rate per hour.

For Lecture # 2

1. Input age and print the message "eligible" if the age is valid enough to have a driving license otherwise print "not eligible".
2. Input an integer value representing the weekday (1, 2, …, 7), and give the day of the week (Monday, Tuesday, …, Sunday).
3. Write pseudo code, which takes input a number, and display its absolute value.
4. Check if marks are greater than 80 then display "good luck", otherwise display "better luck next time"
5. Check whether a number A is divisible by a number B.
6. Julio Cesar Chavez Mark VII is an interplanetary space boxer, who currently holds the championship belts for various weight categories on many different planets within our solar system. However, it is often difficult for him to recall what his "target weight" needs to be on earth in order to make the weight class on other planets. Write a pseudo code to help him keep track of this.
   It should ask him what his earth weight is, and to enter a number for the planet he wants to fight on. It should then

#	Planet	Relative gravity
1	Venus	0.78
2	Mars	0.39
3	Jupiter	2.65
4	Saturn	1.17
5	Uranus	1.05
6	Neptune	1.23

compute his weight on the destination planet based on the table below:
So, for example, if Julio weighs 128 lbs. on earth, then he would weigh just under 50 lbs. on Mars, since Mars' gravity is 0.39 times earth's gravity. (128 * 0.39 is 49.92)

Sample Run 1

```
Please enter your current earth weight: 128

I have information for the following planets:
  1. Venus   2. Mars    3. Jupiter
  4. Saturn  5. Uranus  6. Neptune

Which planet are you visiting? 2
Your weight would be 49.92 pounds on that planet.
```

7. One of the jobs that Joe Roberts has been given at work is to order special paper for a report for a board meeting. The paper comes in reams of 500 sheets. He always makes five more copies than the number of people that will be there. Joe wants to know how many reams of paper he needs for a meeting. He can order only whole, not partial, reams. Help Joe to develop a pseudo code that asks for number of people in meeting and report length in pages to determine the count of reams needed to purchase.

8. An admission charge for The Little Rep Theater varies according to the age of the person. Develop a solution to print the ticket charge given the age of the person. The charges are as follows:

a. Over 55: $10.00
b. 21–54: $15.00
c. 13–20: $10.00
d. 3–12: $5.00
e. Under 3: Free

9. Input a 4 digit number and display each digit of it on separately on screen.
Sample Run:

```
Enter 4 digit Number: 5619
5
6
1
9
```

10. Determine the status of students (Safe/Dropped/Probation). Student is dropped if gpa is less than 1.7, on probation if gpa is greater than or equal to 1.7 but less than 2.0, otherwise student is safe.

11. Input from user three numbers and display on screen the largest, second largest and smallest number of them.

Sample Run 1:	**Sample Run 2:**
Enter three Numbers: 100 34 923	Enter three Numbers: 92 34 92
Largest Number: 923	Largest Number: 92
Second Largest Number: 100	Second Largest Number: 92
Smallest Number: 34	Smallest Number: 34

12. Calculate pay of an employee based on the hours worked. The input includes the employee total hours worked this week and his hourly pay rate. The employee is to be paid his basic wage for the first 40 hours worked and 50% more for all the hours above 40 (overtime pay). Output the regular pay, overtime pay, and total pay for the week. If the employee worked 40 hours or less then do not display any information about overtime pay.

Sample Run 1	***Sample Run 2***
Enter Employee Total Hours Worked: 50 Enter Employee Hourly Pay Rate: 10 Regular Pay: 400 Overtime Pay: 150 Total Pay: 550	Enter Employee Total Hours Worked: 20 Enter Employee Hourly Pay Rate: 5 Regular Pay: 100 Total Pay: 100

13. Input the time in 24-hour format and display time in 12 hours format.

14. Input marks of a student and display the letter grade and grade point.

a. Policy for letter grade is as follows:

Percent Marks	Letter Grade	Grade Point
0 – 49	F	0
50 – 54	D	1
55 – 57	C-	1.7
58 – 60	C	2
61 – 64	C+	2.3
65 – 69	B-	2.7
70 – 74	B	3
75 – 79	B+	3.3
80 – 84	A-	3.7
85 – 100	A	4

15. Geometry Calculator

Devise a pseudo code that displays the following menu:

Geometry Calculator
1. Calculate the Area of a Circle
2. Calculate the Area of a Rectangle
3. Calculate the Area of a Triangle
4. Quit
Enter your choice (1-4):

If the user enters 1, the program should ask for the radius of the circle and then display its area. Use the following formula:

area = PI * r^2

Use 3.14159 for PI and the radius of the circle for r. If the user enters 2, the program should ask for the length and width of the rectangle and then display the rectangle's area. Use the following formula:

area = length * width

If the user enters 3 the program should ask for the length of the triangle s base and its height, and then display its area. Use the following formula:

area = base * height * .5

If the user enters 4, the program should end.
Display an error message if the user enters a number outside the range of 1 through 4 when selecting an item from the menu. Do not accept negative values for the circle s radius, the rectangle's length or width, or the triangle's base or height.

16. Input a 3 digit number and check whether it's a palindrome or not. Palindrome is a word, phrase, or sequence that reads the same backward as forward. For example, 717 is a palindrome number, "EYE" is palindrome word.

Sample Run 1	***Sample Run 2***
Enter a Three Digit Number: 797 797 is Palindrome	Enter a Three Digit Number: 231 231 is not Palindrome