Problem Solving using Pseudo code and Flowchart, Simple programs, understanding errors and error handling.

Objective-To demonstrate the use of data types, simple operators and expressions

Problem Statement – 1: Accept radius and calculate area and circumference of a circle

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main(){
    float pi = 3.141593f;
    int radius;
    float area,circum;
    printf("Enter the raidus : ");
    scanf("%d",&radius);
    area = pi*radius*radius;
    circum = 2*pi*radius;
    printf("Area is : %.2f\n",area);
    printf("Circumference is : %.2f",circum);
    return 1;
}
```

OUTPUT:

```
Enter the raidus : 3
Area is : 28.27
Circumference is : 18.85
--------------------------------
```

Problem Statement - 2: Check if a number is even

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main(){
    int m;
    printf("Enter the number : ");
    scanf("%d",&m);
    if(m%2 == 0){
        printf("It is a even number");
    }
    else{
        printf("It is not a even number");
    }
    return 1;
}
```

OUTPUT:

```
Enter the number : 1433474
It is a even number
--------------------------------
```

Problem Statement - 3: Find maximum of two numbers

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main(){
    int m,n;
    printf("Enter value of m : ");
    scanf("%d",&m);
    printf("Enter value of n : ");
    scanf("%d",&n);
    if(m > n){
        printf("m is maximum number");
    }
    else{
        printf("n is maximum number");
    }
    return 1;
}
```

OUTPUT:

```
Enter value of m : 15
Enter value of n : 3
m is maximum number
--------------------------------
```

```
Enter value of m : 9
Enter value of n : 123
n is maximum number
--------------------------------
```

Problem Statement – 4: Give a discount of 25 % when purchase amount exceeds 5000, otherwise give a discount of 15%

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main(){
    int amount;
    int discount;
    printf("Enter amount : ");
    scanf("%d",&amount);
    if(amount > 5000){
        discount = 25 * (amount/100);
        amount -= discount;
        printf("amount after discount : %i",amount);
    }
    else{
        discount = 15 * (amount/100);
        amount -= discount;
        printf("Amount after discount : ",amount);
    }
    return 1;
}
```

OUTPUT:

```
Enter amount : 6000
amount after discount : 4500
--------------------------------
Process exited after 2.281 seconds with return value 1
Press any key to continue . . .
```

```
Enter amount : 3000
Amount after discount : 2550
--------------------------------
Process exited after 1.328 seconds with return value 1
Press any key to continue . . .
```

Problem Statement – 5**:** Given a set of 5 values representing marks of students, count the total students that have passed. (A score of 40 is required for passing.)

CODE :

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main(){
int count = 0;
int n = 5;
int marks;
for(int i = 0;i<n;i++){
    printf("Enter the marks : ");
    scanf("%d",&marks);

    if(marks >= 40){
    count+=1;
}
}
printf("Count is : %i",count);
return 1;
}
```

OUTPUT:

```
Enter the marks : 8
Enter the marks : 15
Enter the marks : 22
Enter the marks : 47
Enter the marks : 48
Count is : 2
Process returned 1 (0x1)   execution time : 10.764 s
Press any key to continue.
```

Problem Statement – 6: Accept characters till a * is entered from the keyboard and count the number of characters entered

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>

int main() {
    char ch;
    int count = 0;
    printf("Enter characters :\n");
    scanf(" %c", &ch);
    while (ch != '*') {
        count++;
        scanf(" %c", &ch);
    }
    printf("Total characters entered : %d\n", count);

    return 0;
}
```

OUTPUT:

```
Enter characters :
c
w
G
F
*
Total characters entered : 4

Process returned 0 (0x0)   execution time : 15.919 s
Press any key to continue.
```

Problem Statement – 7: Accept a number and calculate the sum of its digits.

INPUT:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main() {
    int num, digit, sum = 0;
    printf("Enter a number: ");
    scanf("%d", &num);
    while (num != 0) {
        digit = num % 10;
        sum += digit;
        num /= 10;
    }
    printf("Sum of digits: %d", sum);
    return 0;
}
```

OUTPUT:

```
Enter a number: 44
Sum of digits: 8
Process returned 0 (0x0)   execution time : 18.890 s
Press any key to continue.
```

Q1)

Data	Data Format	C Data Type	C Variable declaration	Input Statement	Output statement

quantity
month
creditcard number
	Numeric	int
		Short int
		long int
			int quantity;
			short month;
			long ccno;
				scanf("%d",&quantity);
				scanf("%d",&month);
				scanf("%ld", &ccno);
					printf("The quantity is %d", quantity);
					printf("Credit card number is %ld, ccno);

CODE:

```
//CH.SC.U4CSE24015
```

```c
#include <stdio.h>
int main(){
    int quantity;
    short month;
    long long int ccno;
    printf("Input quantity:");
    scanf("%d",&quantity);
    printf("Input month:");
    scanf(" %hd",&month);
    printf("Input credit card number :");
    scanf(" %lld",&ccno);
    printf("The quantity is %d\n",quantity);
    printf("Credit card number is %lld", ccno);
    return 1;
}
```

OUTPUT:

```
Input quantity:3
Input month:09
Input credit card number :9824120842085
The quantity is 3
Credit card number is 9824120842085
Process returned 1 (0x1)   execution time : 386.311 s
Press any key to continue.
```

Q2)

price π	real	float double	float price; const double pi=3.141593 ;	scanf("%f",&price);	printf("The price is %5.2f", price);

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main(){
    float price;
    const double pi=3.141593;
    printf("Enter the price : ");
    scanf("%f",&price);
    printf("The price is %5.2f",price);
    return 1;
}
```

OUTPUT:

```
Enter the price : 982.122
The price is 982.12
Process returned 1 (0x1)   execution time : 18.123 s
Press any key to continue.
```

Q3)

grade	character		char grade;	scanf("%c",&grade)	printf("The grade is %c",grade);

CODE:

```c
//CH.SC.U4CSE24015
#include <stdio.h>
int main(){
    char grade;
    printf("Enter the grade:");
    scanf("%c",&grade);
    printf("The grade is %c",grade);
    return 1;
}
```

OUTPUT:

```
Enter the grade:A
The grade is A
Process returned 1 (0x1)   execution time : 12.887 s
Press any key to continue.
```

SELF ACTIVITY:

Sr_no	Principle amount	No of year	Rate of Intrest	Simple intrest
1	2000	3	5	300.00
2	4500	2	4.5	405.00
3	5000	6	8.3	2490.00

```c
//CH.SC.U4CSE24015
#include <stdio.h>
void main( )
{
float amount, rateOfInterest, simpleInterest;
int noOfYears;

printf("Give the Principal Sum : ");
scanf("%f",&amount);
printf("Give the Rate of Interest : ");
scanf("%f",&rateOfInterest);
printf("Give the Number of years : ");
scanf("%d",&noOfYears);

simpleInterest=amount*noOfYears*rateOfInterest / 100;

printf("The simple Interest on amount %7.2f for %d years at the rate %4.2f is %6.2f", amount,
noOfYears, rateOfInterest, simpleInterest);
}
```

OUTPUT – 1:

```
Give the Principal Sum : 2000
Give the Rate of Interest : 5
Give the Number of years : 3
The simple Interest on amount 2000.00 for 3 years at the rate 5.00 is 300.00
Process returned 76 (0x4C)   execution time : 15.810 s
Press any key to continue.
```

OUTPUT – 2:

```
Give the Principal Sum : 4500
Give the Rate of Interest : 4.5
Give the Number of years : 2
The simple Interest on amount 4500.00 for 2 years at the rate 4.50 is 405.00
Process returned 76 (0x4C)   execution time : 12.115 s
Press any key to continue.
```

OUTPUT – 3:

```
Give the Principal Sum : 5000
Give the Rate of Interest : 8.3
Give the Number of years : 6
The simple Interest on amount 5000.00 for 6 years at the rate 8.30 is 2490.00
Process returned 77 (0x4D)   execution time : 6.836 s
Press any key to continue.
```