

C PROGRAMING
ENGINEERING (F.Y. SEM – I)
NOTES BY - PROF. SUVARNA R. CHAVAN
(B.E. COMPUTER)

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1.	Construct the program to accept an integer from user and identify whether the given number is Prime number/Armstrong Number/Palindrome number .
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4.	Determine whether a given year is a leap year or a century year
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PRACTICAL

- **Prime Number :**

```
#include<stdio.h>

#include<conio.h>

void main()
{
    int i, n, count=0;

    clrscr();

    printf("Enter Any Number :");

    scanf("%d", &n);

    for(i=1; i<=n; i++)
    {
        if(n%i==0)
        {
            count++;
        }
    }

    if(count==2)
    {
        printf("%d is a prime number", n);
    }

    else

        printf("%d is not a prime number",n);

    getch();
}
```

- **Output :**

Enter any number : 7 - is a prime number.

- **Armstrong Number :**

```
#include <stdio.h>
#include<conio.h>
int main()
{
    int i, r, n, sum = 0;
    clrscr();
    printf("Enter the number: ");
    scanf("%d", &n);
    i = n;
    while (n > 0)
    {
        r = n % 10;
        sum = sum + (r * r * r);
        n = n / 10;
    }
    if (i == sum)
        printf("is an Armstrong number.\n", i);
    else
        printf(" is not an Armstrong number.\n", i);
    getch();
    return 0;
}
```

- **Output :**

Enter the number :

153 is Armstrong number.

- **Palindrome Number :**

```
#include <stdio.h>
#include<conio.h>
int main()
{
    int temp, r, n, sum = 0;
    clrscr();
    printf("Enter the number: ");
    scanf("%d", &n);
    temp = n;
    while (n > 0)
    {
        r = n % 10;
        sum = (sum*10)+r;
        n = n / 10;
    }
    if (temp== sum)
        printf("is an Palindrome number.\n");
    else
        printf(" is not an Palindrome number.\n");
    getch();
    return 0;
}
```

- **Output :**

Enter any number :

121 is Palindrome number

- **To Print number of days in a month using switch case**

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
    int month;
```

```
    clrscr();
```

```
    printf("Enter month number(1-12): ");
```

```
    scanf("%d", &month);
```

```
    switch(month)
```

```
{
```

```
    case 1:
```

```
        printf("January 31 days\n");
```

```
        break;
```

```
    case 2:
```

```
        printf("February 28/29 days\n");
```

```
        break;
```

```
    case 3:
```

```
        printf("March 31 days\n");
```

```
        break;
```

```
    case 4:
```

```
        printf("April 30 days\n");
```

```
        break;
```

```
    case 5:
```

```
        printf("May 31 days\n");
```

```
        break;
```

```
    case 6:
```

```
        printf("June 30 days\n");
break;
case 7:
    printf("July 31 days\n");
    break;
case 8:
    printf("August 31 days\n");
    break;
case 9:
    printf("September 30 days\n");
    break;
case 10:
    printf("October 31 days\n");
    break;
case 11:
    printf("November 30 days\n");
    break;
case 12:
    printf("December 31 days\n");
    break;
default:
    printf("Invalid input! Please enter month number between 1-12");
}
getch();
return 0;
}
```

Output: Enter month number 1-12 : 4 - April 30 days

- **Conversion of Binary number to Decimal number**

```
#include <stdio.h>
#include <conio.h>
void main()
{
    int num, binary_no, decimal_no = 0, base = 1, rem;
    clrscr();
    printf (" Enter binary number with the combination of 0 and 1 \n");
    scanf ("%d", &num);

    binary_no = num;

    while ( num > 0)
    {
        rem = num % 10;
        decimal_no = decimal_no + rem * base;
        num = num / 10;
        base = base * 2;
    }

    printf ( "Binary number is %d \n", binary_no);
    printf ("Decimal number is %d \t", decimal_no);
    getch();
}
```

- **Output :**

Enter binary number with the combination of 0 and 1 :
Binary number is 1011
Decimal number is 11

- **Given year is a leap year or a century year**

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int year;
    clrscr();
    printf("Enter a year: ");
    scanf("%d", &year);

    if(year%400==0 || year%4==0 && year%100!=0)
    {
        printf("%d is a leap year");
    }
    else
    {
        printf("%d is not a leap year");
    }
    getch();
}
```

- **Output :**

Enter a year :
2016

2016 is a leap year.

- **Concept of loops to compute sum of series**

```
#include<stdio.h>
#include<conio.h>

int main()
{
    int i, N, sum;
    clrscr();

    printf("Enter the value of N: ");
    scanf("%d",&N);
    sum=0;

    for(i=1; i<=N; i++)
        sum= sum+ i;
    printf("Sum of the series is : %d\n", sum);
    getch();
    return 0;
}
```

- **Output :**
Enter the Value of N :
5
Sum of the Series is 15

- **Program for accepting string and reverse it without using library functions.**

```
#include<stdio.h>
#include<conio.h>
Void main ()
{
    char a[50] ;
    clrscr();
    printf ("enter a string");

    gets (a);
    strrev (a);

    printf("reversed string = %s",a)
    getch ();
}
```

- **Output :**

Enter a string :
Hello

Reversed string :
olleH

- **Implement string operations such as compare, concatenate, string length.**
 1. **Concatenate String :**

```
#include <stdio.h>
#include <string.h>
int main()
{
    char str1[50] = "Hello, ";
    const char str2[50] = " World!";
    clrscr();

    strcat(str1, str2);
    printf("%s", str1);
    getch();
    return 0;
}
```

- **Output :**

Hello, World!

2. Compare String :

```
#include <stdio.h>
#include <string.h>
Void main ();
{
    char str1 [50];
    char str2 [50];
    clrscr();
    printf("Enter 1st String :\t");
    gets(str1);
    printf("Enter 2st String :\t");
    gets(str2);
    if (strcmp(str1, str2)==0)
    {
        printf("Both string are equal \n");
    }
    Else
    Printf("String are not equal \n");
    Getch();
}
```

- **Output :**

- 1) Enter 1st string : Gangamai
Enter 2nd string : College
String are not equal.
- 2) Enter 1st string : Gangamai College
Enter 2nd string : Gangamai College
Both string are equal.

3. String Length :

```
#include <stdio.h>
#include <string.h>
int main()
{
    char str[100] = "Gangamai College of Engineering";
    int len = strlen(str);
    clrscr();

    printf("Length of the String is : %d", len);
    getch();
    return 0;
}
```

- **Output :**

Length of the String is : 31

- **Create a structure to store employee number, Name, Department and Basic salary. Create an array of structure to accept and display the value of 10 employees.**

```
#include<stdio.h>
struct employee
{
    int number;
    char name [30];
    char department [30];
    int salary;
};
int main ()
{
    struct employee emp [10];
    int i;
    clrscr ();
    printf ("Enter 10 Emplolyees Details:\n");

    for (i=0; i<10; i++)
    {
        printf("\nEmployee %d:\n",i+1);
        printf("Enter Employee Number :\t");
        scanf("%d",&emp[i].number);

        printf("Enter Employee Name :\t");
        scanf("%s",&emp[i].name);
        printf("Enter Employee Department :\t");
        scanf("%s",&emp[i].department);

        printf("Enter Employee Basic Salary :\t");
        scanf("%d",&emp[i].salary);
    }

    printf("\nEmployee Details :\n");

    for(i=0; i<10; i++)
    {
```

```
        printf("\nEmployee %d:\n",i+1);
        printf("Employee Number :%d\n",emp[i].number);
        printf("Employee Name :%s\n",emp[i].name);
        printf("Employee Department :%s\n",emp[i].department);
        printf("Employee Basic Salary :%d\n",emp[i].salary);
    }
    getch();
    return 0;
}
```

- **Output :**

Enter details of 10 employees :

Employee Number : 101

Employee Name : Gangamai

Employee Department : Computer

Employee Basic Salary : 16000