Assignment-8

Code:

```c
// Q27. Write a C program to multiply two matrices.

#include <stdio.h>
int main()
{
    int r1,r2,c1,c2;
    printf("Enter Rows and Columns of First Matrix: ");
    scanf("%d %d",&r1,&c1);
    int A[r1][c1];
    // Insert Elements of First Matrix.
    for (int i=0;i<r1;i++)
    {
        for (int j=0;j<c1;j++)
        {
            printf("Enter Element %d%d: ",i,j);
            scanf("%d",&A[i][j]);
        }
    }
    // Printing Element of First Matrix
    printf("Element of First Matrix %dx%d are: \n",r1,c1);
    for (int i=0;i<r1;i++)
    {
        for (int j=0;j<c1;j++)
            printf("%d ",A[i][j]);
        printf("\n");
    }
    printf("Enter Rows and Columns of Second Matrix: ");
    scanf("%d %d",&r2,&c2);
    int B[r2][c2];
```

Output:

```
Element of First Matrix 2x3 are:
2 4 -1
6 10 15
Enter Rows and Columns of Second Matrix: 3 1
Enter Element 00: 6
Enter Element 10: 2
Enter Element 20: 4
Element of Second Matrix 3x1 are:
6
2
4
Element of Resultant Matrix 2x1 are:
16
116
```

Code:

```c
// Q28. Write a C program to check for palindromes.
#include <stdio.h>
void check_palindrome(int number)
{
    int original_number = number;
    int reversed=0;
    while (number > 0)
    {
        int remainder = number%10;
        reversed = reversed * 10 + remainder;
        number/=10;
    }
    if (original_number == reversed)
        printf("Yes!! %d is a Palindrome.\n",original_number);
    else
        printf("No!! %d is NOT a Palindrome.\n",original_number);
}
int main()
{
    int n;
    printf("Enter Number: ");
    scanf("%d",&n);
    check_palindrome(n);
    return 0;
}
```

Output:

```
Enter Number: 1234321
Yes!! 1234321 is a Palindrome.
```

Code:

```c
// Q29. Write a C program to convert a decimal number into a binary number.
#include <stdio.h>
int main()
{
    int n,length=0;
    printf("Enter Decimal Number: ");
    scanf("%d",&n);
    int original_number=n,binary=0,reversed_binary=0;
    while(n > 0)
    {
        int remainder=n%2;
        reversed_binary = reversed_binary * 10 + remainder;
        n/=2;
    }
    while (reversed_binary > 0)
    {
        int remainder = reversed_binary%10;
        binary = binary * 10 + remainder;
        reversed_binary/=10;
    }
    printf("Decimal: %d --> Binary: %d\n",original_number,binary);
}
```

Output:

```
Enter Decimal Number: 13
Decimal: 13 --> Binary: 1101
```

Code:

```c
// Q30. Write a program to check, if a given year is a leap year or not.
#include <stdio.h>
int main()
{
    int n;
    printf("Enter Year: ");
    scanf("%d",&n);
    if ((n%400 == 0) || (n%4 == 0 && n%100 != 0))
        printf("Yes!! %d is a Leap Year.\n",n);
    else
        printf("No!! %d is NOT a Leap Year.\n",n);
}
```

Output:

```
Enter Year: 2024
Yes!! 2024 is a Leap Year.
```