

Assignment-3

Q1 - Write a C program to find power of a number using for loop.

Ans- PROGRAM:

```
#include <stdio.h>

int main()
{
    int i,expo,num;
    int power = 1;

    printf("Enter the number: ");
    scanf("%d",&num);

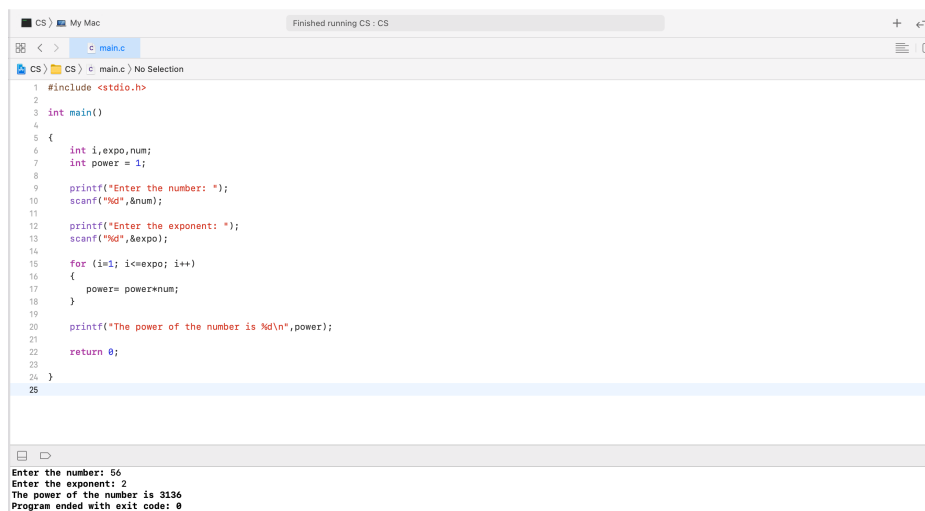
    printf("Enter the exponent: ");
    scanf("%d",&expo);

    for (i=1; i<=expo; i++)
    {
        power= power*num;
    }

    printf("The power of the number is %d\n",power);

    return 0;
}
```

Output:



```
CS) My Mac Finished running CS : CS
c main.c
CS) CS) c main.c No Selection
1 #include <stdio.h>
2
3 int main()
4
5 {
6     int i,expo,num;
7     int power = 1;
8
9     printf("Enter the number: ");
10    scanf("%d",&num);
11
12    printf("Enter the exponent: ");
13    scanf("%d",&expo);
14
15    for (i=1; i<=expo; i++)
16    {
17        power= power*num;
18    }
19
20    printf("The power of the number is %d\n",power);
21
22    return 0;
23
24 }
25

Enter the number: 56
Enter the exponent: 2
The power of the number is 3136
Program ended with exit code: 0
```

Q2 - Write a C program to find all factors of a number.

Ans- PROGRAM:

```
#include <stdio.h>

int main() {
    int num, i;
    printf("Enter a positive integer: ");
    scanf("%d", &num);
    printf("Factors of %d are: \n", num);
    for (i = 1; i <= num; ++i) {
        if (num % i == 0) {
            printf("%d \n", i);
        }
    }
    return 0;
}
```

Output:

```
Enter a positive integer: 68
Factors of 68 are:
1
2
4
17
34
68
Program ended with exit code: 0
```

Q3 - Write a C program to find HCF (GCD) of two numbers.

Ans- PROGRAM:

```
#include<stdio.h>

int main()
{
    int n1,n2,i,min,gcd = 0;
    printf("Enter two integers: ");
    scanf("%d%d",&n1,&n2);
    min = (n1<n2)?n1:n2;

    for(i=1;i<=min;i++)
    {
        if(n1%i==0 && n2%i==0)
        {
            gcd = i;
        }
    }
    printf("H.C.F(G.C.D) of %d and %d is %d\n", n1, n2, gcd);

    return 0;
}
```

Output:

```
Enter two integers: 128 688
H.C.F(G.C.D) of 128 and 688 is 16
Program ended with exit code: 0
```

Q4 - Write a C program to find LCM of two numbers.

Ans- PROGRAM:

```
#include <stdio.h>

int main() {
    int n1, n2, max;
    printf("Enter two positive integers: ");
    scanf("%d %d", &n1, &n2);

    max = (n1 > n2) ? n1 : n2;

    while (1) {
        if (max % n1 == 0 && max % n2 == 0) {
            printf("The LCM of %d and %d is %d.\n", n1, n2,
max);
            break;
        }
        ++max;
    }
    return 0;
}
```

Output:

```
Enter two positive integers: 68 72
The LCM of 68 and 72 is 1224.
Program ended with exit code: 0
```

Q5 - Write a C program to find all prime factors of a number.

Ans- PROGRAM:

```
#include <stdio.h>

int main()
{
    int i, j, Number, P;

    printf("Please Enter any number to Find Factors : ");
    scanf("%d", &Number);

    for (i = 2; i <= Number; i++)
    {
        if(Number % i == 0)
        {
            P = 1;
            for (j = 2; j <= i/2; j++)
            {
                if(i % j == 0)
                {
                    P = 0;
                    break;
                }
            }
            if(P == 1)
            {
                printf("%d is a Prime Factor \n", i);
            }
        }
    }

    return 0;
}
```

Output:

```
Please Enter any number to Find Factors : 56
2 is a Prime Factor
7 is a Prime Factor
Program ended with exit code: 0
```

Q6 - Write a C program to check whether a number is Strong number or not.

Ans- PROGRAM:

```
#include<stdio.h>

int main() {
    int num,i,f,r,sum=0,temp;

    printf("Enter a number: ");
    scanf("%d",&num);

    temp=num;

    while(num) {
        (void)(i=1), f=1;
        r=num%10;

        while(i<=r)
        {
            f=f*i;
            i++;
        }
        sum=sum+f;
        num=num/10;
    }
    if(sum==temp)
        printf("%d is a strong number\n",temp); else
        printf("%d is not a strong number\n",temp);
    return 0;
}
```

Output:

```
Enter a number: 200
200 is not a strong number
Program ended with exit code: 0
```

Q7 - Write a C program to print all Strong numbers between 1 to n.

Ans- PROGRAM:

```
#include <stdio.h>

int main(void) {
    unsigned long int factorials[10];
    unsigned long int number;

    factorials[0] = 1;
    for (int i = 1; i < 10; i++) {
        factorials[i] = factorials[i - 1] * i;
    }

    printf("Enter the value of n: ");
    scanf("%lu", &number);

    printf("All Strong numbers between 1 to %ld are:\n",
number);

    for (unsigned long int j = 1; j <= number; j++) {
        long int n, sum = 0;
        for (n = j; n > 9; n /= 10) {
            sum += factorials[n % 10];
        }
        sum += factorials[n];
        if (j == sum) {
            printf("%ld\n", j);
        }
    }
    return 0;
}
```

Output:

```
Enter the value of n: 145
All Strong numbers between 1 to 145 are:
1
2
145
Program ended with exit code: 0
```

Q8 - Write a C program to convert Hexadecimal to Decimal number system.

Ans- PROGRAM:

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

int main()
{
    int decimal_number = 0, remainder, hexadecimal_number;
    int count = 0;

    printf("Enter a Hexadecimal Number: ");

    scanf("%d", &hexadecimal_number);

    while(hexadecimal_number > 0)
    {
        remainder = hexadecimal_number % 10;
        decimal_number = decimal_number + remainder *
pow(16, count);
        hexadecimal_number = hexadecimal_number / 10;
        count++;
    }

    printf("Decimal Equivalent: %d\n", decimal_number);
    return 0;
}
```

Output:

```
Enter a Hexadecimal Number: 100
Decimal Equivalent: 256
Program ended with exit code: 0
```


Q9 - Write a C program to input week number and print weekday.

Ans- PROGRAM:

```
#include <stdio.h>

int main()
{
    unsigned int week;
    //Ask user to input week number
    printf("Enter week number (1-7): ");
    scanf("%u", &week);
    if(week == 1)
    {
        printf("The day is Monday\n");
    }
    else if(week == 2)
    {
        printf("The day is Tuesday\n");
    }
    else if(week == 3)
    {
        printf("The day is Wednesday\n");
    }
    else if(week == 4)
    {
        printf("The day is Thursday\n");
    }
    else if(week == 5)
    {
        printf("The day is Friday\n");
    }
    else if(week == 6)
    {
        printf("The day is Saturday\n");
    }
    else if(week == 7)
    {
        printf("The day is Sunday\n");
    }
    else
    {
        printf("Invalid Input! Please enter week number
between 1-7.\n");
    }
    return 0;
}
```

Output:

```
Enter week number (1-7): 6  
The day is Saturday  
Program ended with exit code: 0
```

Q10 - Write a C program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following:

Percentage 90% => Grade A
Percentage 80% => Grade B
Percentage 70% => Grade C
Percentage 60% => Grade E
Percentage 40% => Grade F

Ans- PROGRAM:

```
#include <stdio.h>

int main()
{
    int phy, chem, bio, math, comp;
    float per;

    printf("Enter five subjects marks: ");
    scanf("%d %d %d %d %d", &phy, &chem, &bio, &math, &comp);

    per = (phy + chem + bio + math + comp) / 5.0;

    printf("Percentage = %.2f\n", per);

    if(per >= 90)
    {
        printf("Grade A\n");
    }
    else if(per >= 80)
    {
        printf("Grade B\n");
    }
    else if(per >= 70)
    {
        printf("Grade C\n");
    }
    else if(per >= 60)
    {
        printf("Grade D\n");
    }
    else if(per >= 40)
    {
        printf("Grade E\n");
    }
}
```

```
    else
    {
        printf("Grade F\n");
    }

    return 0;
}
```

Output:

```
Enter five subjects marks: 96 97 98 99 100
Percentage = 98.00
Grade A
Program ended with exit code: 0|
```