Structured Programming Lab (Summer-2022) Lecture 05

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Problem 01:

```c
/* Simanta kumar Roy
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*/

#include<stdio.h>
int main()
{
    for(int i=0;i<10;i++)
        printf("Hello world !\n");

    return 0;
}
```

Output:

```
Hello world !
Hello world !
Hello world !
Hello world !
Hello world !
Hello world !
Hello world !
Hello world !
Hello world !
Hello world !

Process returned 0 (0x0)   execution time : 0.048 s
Press any key to continue.
```

Problem 02:

```c
/* Simanta kumar Roy
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*/

#include<stdio.h>
int main()
{
    int sum=0;
    for(int i=1;i<=10;i++)
        sum+=i;
    printf("%d",sum);

    return 0;
}
```

Output:

```
55
Process returned 0 (0x0)   execution time : 0.048 s
Press any key to continue.
```

Problem 03:

```c
/* Simanta kumar Roy
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*/
#include<stdio.h>
#include<string.h>
int main()
{
    int sum=0,a;
    scanf("%d",&a);
    for(int i= 0;i<5;i++)
    {
     sum+=a%10;
     a=a/10;
    }

    printf("%d",sum);
    return 0;
}
```

Output:

```
22222
10
Process returned 0 (0x0)   execution time : 5.272 s
Press any key to continue.
```

Problem 04:

```c
#include<stdio.h>
#include<conio.h>
int main()
{
    int num, n, r_num=0;
    printf("Enter a number: ");
    scanf("%d", &num);
    n = num;
    while(num!=0)
    {
        r_num = r_num * 10;
        r_num = num % 10 + r_num;
        num = num/10;
    }
    printf("Reversed Number of %d is %d\n",n, r_num);

    if (n==r_num)
        printf("Input Number %d & Reversed Number %d are equal", n, r_num);
    else
        printf("Input Number %d & Reversed Number %d are not equal", n, r_num);

   return 0;
}
```

Output:

```
Enter a number: 11111
Reversed Number of 11111 is 11111
Input Number 11111 & Reversed Number 11111 are equal
Process returned 0 (0x0)   execution time : 2.872 s
Press any key to continue.
```

Problem 05:

```c
/* Simanta kumar Roy
   221-35-909
*/

#include<stdio.h>
int main()
{
    int n;
    long long int f=1;
    scanf("%d",&n);
    while(n>1)
    {
        f = f*n;
        n--;
    }
    printf("%lli",f);

    return 0;
}
```

Output:

```
4
24
Process returned 0 (0x0)   execution time : 20.941 s
Press any key to continue.
```

Problem 06:

```c
/* Simanta kumar Roy
   221-35-909
*/
#include <stdio.h>
int main()
{
   int num1, num2, flag_var, i, j;
   printf("Enter two range(input integer numbers only):");
   scanf("%d %d", &num1, &num2);
   printf("Prime numbers from %d and %d are:\n", num1, num2);
   for(i=num1+1; i<num2; ++i)
   {
      flag_var=0;
      for(j=2; j<=i/2; ++j)
      {
         if(i%j==0)
         {
            flag_var=1;
            break;
         }
      }
      if(flag_var==0)
         printf("%d\n",i);
   }
   return 0;
}
```

Output:

```
Enter two range(input integer numbers only):1 10
Prime numbers from 1 and 10 are:
2
3
5
7

Process returned 0 (0x0)   execution time : 4.685 s
Press any key to continue.
```

Problem 07:

```c
/* Simanta kumar Roy
   221-35-909
*/
#include<stdio.h>
int main(){
int n,i,m=0,flag=0;
printf("Enter the number to check prime:");
scanf("%d",&n);
m=n/2;
for(i=2;i<=m;i++)
{
if(n%i==0)
{
printf("Number is not prime");
flag=1;
break;
}
}
if(flag==0)
printf("Number is prime");
return 0;
 }
```

Output:

```
Enter the number to check prime:7
Number is prime
Process returned 0 (0x0)   execution time : 3.136 s
Press any key to continue.
```

Problem 08:

```c
/* Simanta kumar Roy
   221-35-909
*/

#include <stdio.h>
int main() {

  int i, n;
  int t1 = 0, t2 = 1;
  int nextTerm = t1 + t2;
  printf("Enter the number of terms: ");
  scanf("%d", &n);
  printf("Fibonacci Series: %d, %d, ", t1, t2);

  for (i = 3; i <= n; ++i) {
    printf("%d, ", nextTerm);
    t1 = t2;
    t2 = nextTerm;
    nextTerm = t1 + t2;
  }

  return 0;
}
```

Output:

```
Enter the number of terms: 10
Fibonacci Series: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34,
Process returned 0 (0x0)   execution time : 5.058 s
Press any key to continue.
```

Problem 09:

```c
/* Simanta kumar Roy
   221-35-909
*/

#include <stdio.h>
int main() {
   int i, j, rows;
   printf("Enter the number of rows: ");
   scanf("%d", &rows);
   for (i = 1; i <= rows; ++i) {
      for (j = 1; j <= i; ++j) {
         printf("*");
      }
      printf("\n");
   }
   return 0;
}
```

Output:

```
Enter the number of rows: 5
*
**
***
****
*****

Process returned 0 (0x0)   execution time : 2.309 s
Press any key to continue.
```

Problem 10:

```c
/* Simanta kumar Roy
   221-35-909
*/

#include <stdio.h>
int main() {
   int i, j, rows;
   printf("Enter the number of rows: ");
   scanf("%d", &rows);
   for (i = 1; i <= rows; ++i) {
      for (j = i; j >= 1; --j) {
         printf("%d ", j);
      }
      printf("\n");
   }
   return 0;
}
```

Output:

```
Enter the number of rows: 5
1
2 1
3 2 1
4 3 2 1
5 4 3 2 1

Process returned 0 (0x0)   execution time : 1.426 s
Press any key to continue.
```