Institute of technology of Cambodia

Department of Information and communication Engineering

The lesson taking about basic of loop and prime numbers

TP5-Loop (for loop while loop and do while loop)

TP: Algorithm and Programming

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Contents

Problem1: A program to get st and en from a user,
where st is a starting number and en is an ending number.
Find summation and multiplication of numbers from st to en.

----

st: 2

en: 5

SUM: 2+3+4+5=?
MULTIPLY: 2*3*4*5=?

Start here ✕   P01.c ✕

```c
1   #include<stdio.h>
2   main(){
3
4       int st,en,sum,mul;
5       printf("Enter number of st: ");scanf("%d",&st);
6       printf("Enter number of en: ");scanf("%d",&en);
7
8       int k;
9       printf("sum:");
10      for(k=st; k<=en; k=k+1){
11          if(k==en){
12              printf("%d ",k);
13          }
14          else{
15              printf("%d +",k);
16          }
17          sum=sum+k;
18      }
19      printf("=%d ",sum);
20
21      int i;
22      printf("\n\nMul:");
23      for(i=st; i<=en; i=i+1){
24          if(i==en){
25              printf("%d ",i);
26          }
27          else{
28              printf("%d*",i);
29          }
30          mul=mul*i;
31      }
32      printf("=%d ",mul);
33  }
34
```

Select "C:\Code C program\P01.exe"

```
Enter number of st: 2
Enter number of en: 5
sum:2 +3 +4 +5 =14

Mul:2*3*4*5 =1920
Process returned 0 (0x0)   execution time : 5.623 s
Press any key to continue.
```

Problem2 - Write a C program to get numbers, say m and n, from a user.
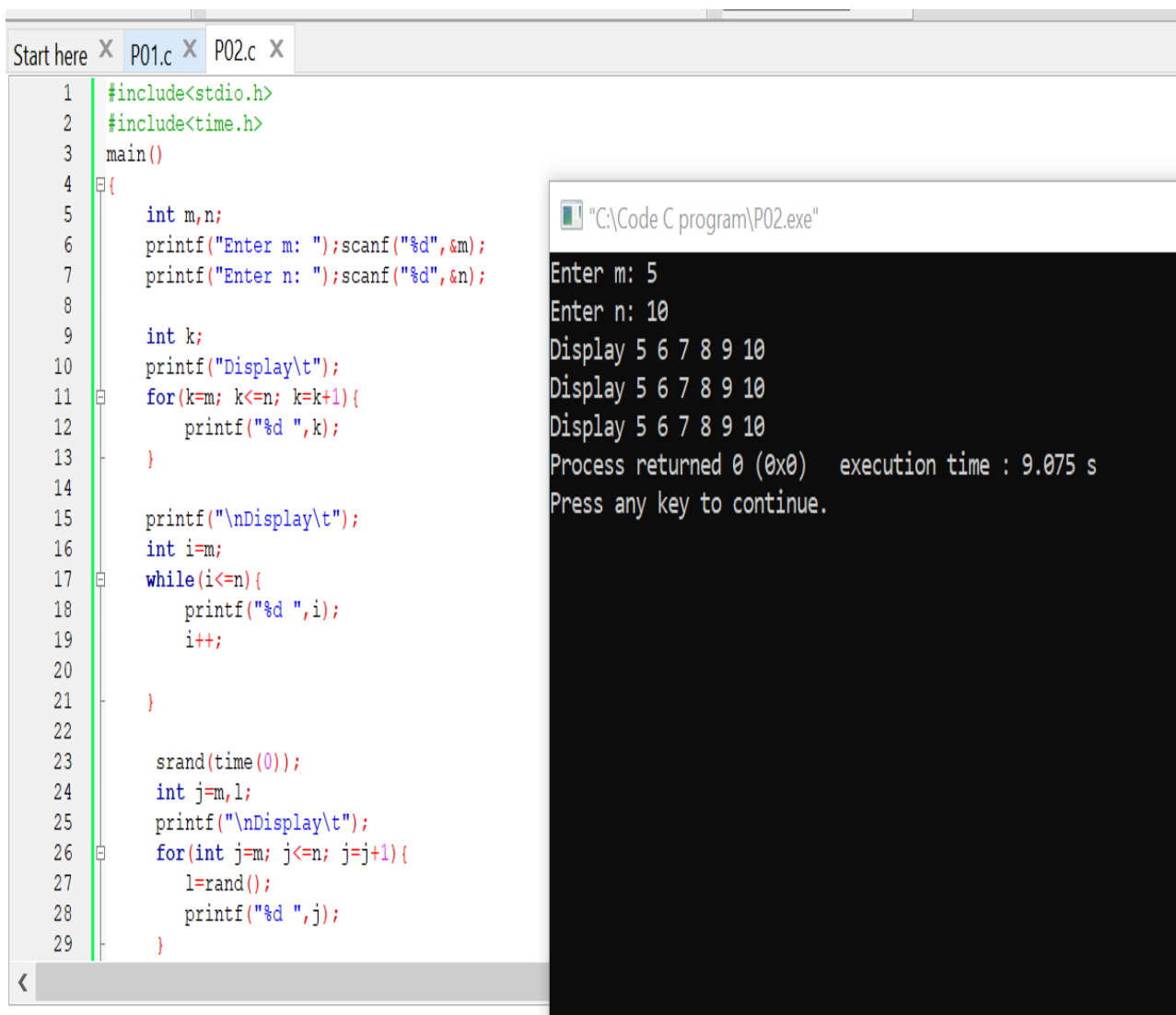Display numbers in between [m, n] on screen using 'for' loop, 'while loop', and 'do while' loop.

----

m: 5

n: 100

=> Display 5 6 7 8 ... 100

=> Display 5 6 7 8 ... 100

=> Display 5 6 7 8 ... 100

Start here ✕ P01.c ✕ P02.c ✕
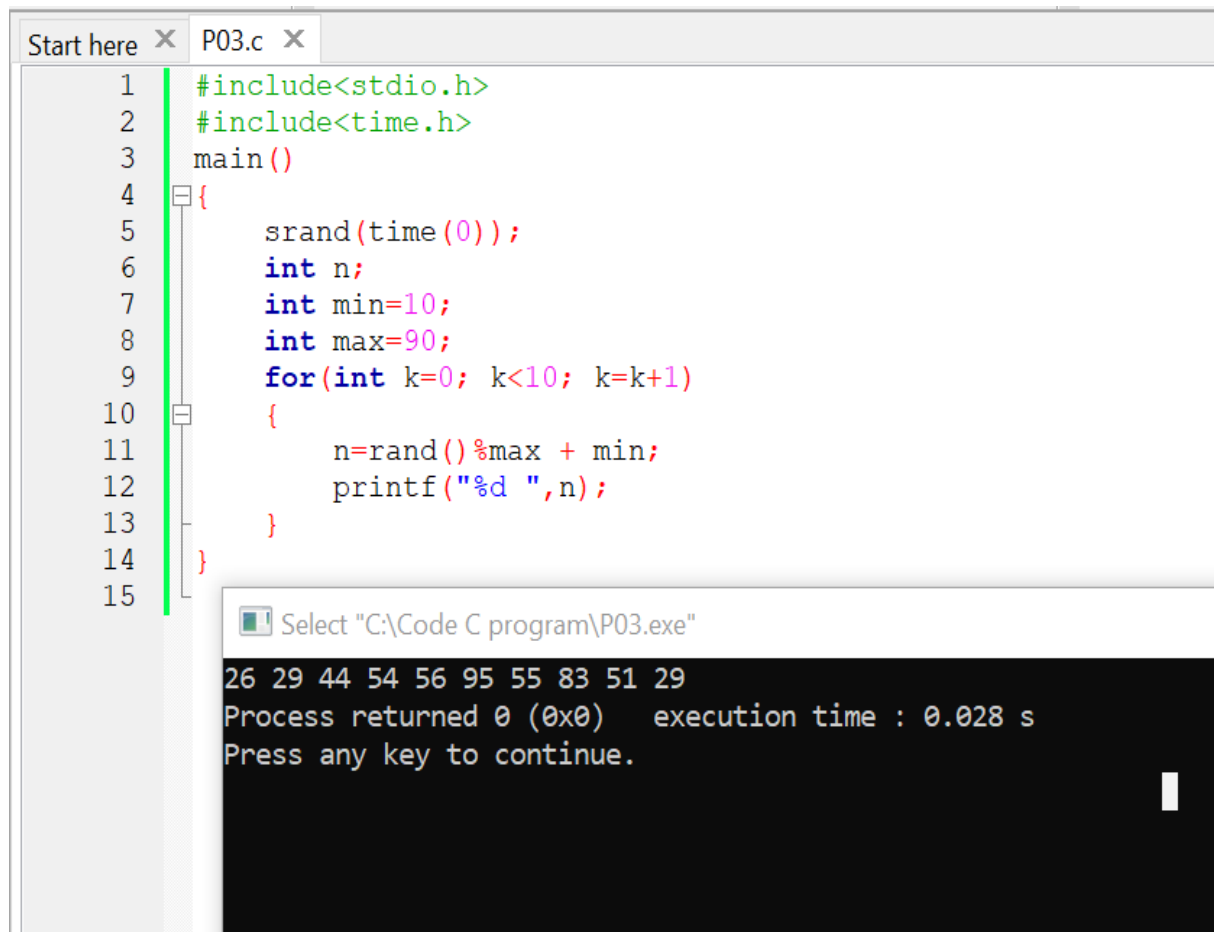
```
1    #include<stdio.h>
2    #include<time.h>
3    main()
4    {
5        int m,n;
6        printf("Enter m: ");scanf("%d",&m);
7        printf("Enter n: ");scanf("%d",&n);
8
9        int k;
10       printf("Display\t");
11       for(k=m; k<=n; k=k+1){
12           printf("%d ",k);
13       }
14
15       printf("\nDisplay\t");
16       int i=m;
17       while(i<=n){
18           printf("%d ",i);
19           i++;
20
21       }
22
23       srand(time(0));
24       int j=m,l;
25       printf("\nDisplay\t");
26       for(int j=m; j<=n; j=j+1){
27           l=rand();
28           printf("%d ",j);
29       }
```

"C:\Code C program\P02.exe"

```
Enter m: 5
Enter n: 10
Display 5 6 7 8 9 10
Display 5 6 7 8 9 10
Display 5 6 7 8 9 10
Process returned 0 (0x0)   execution time : 9.075 s
Press any key to continue.
```

Problem3- Write a C program to generate 10 random numbers in between [10, 10000]. Display those randomized numbers on screen.
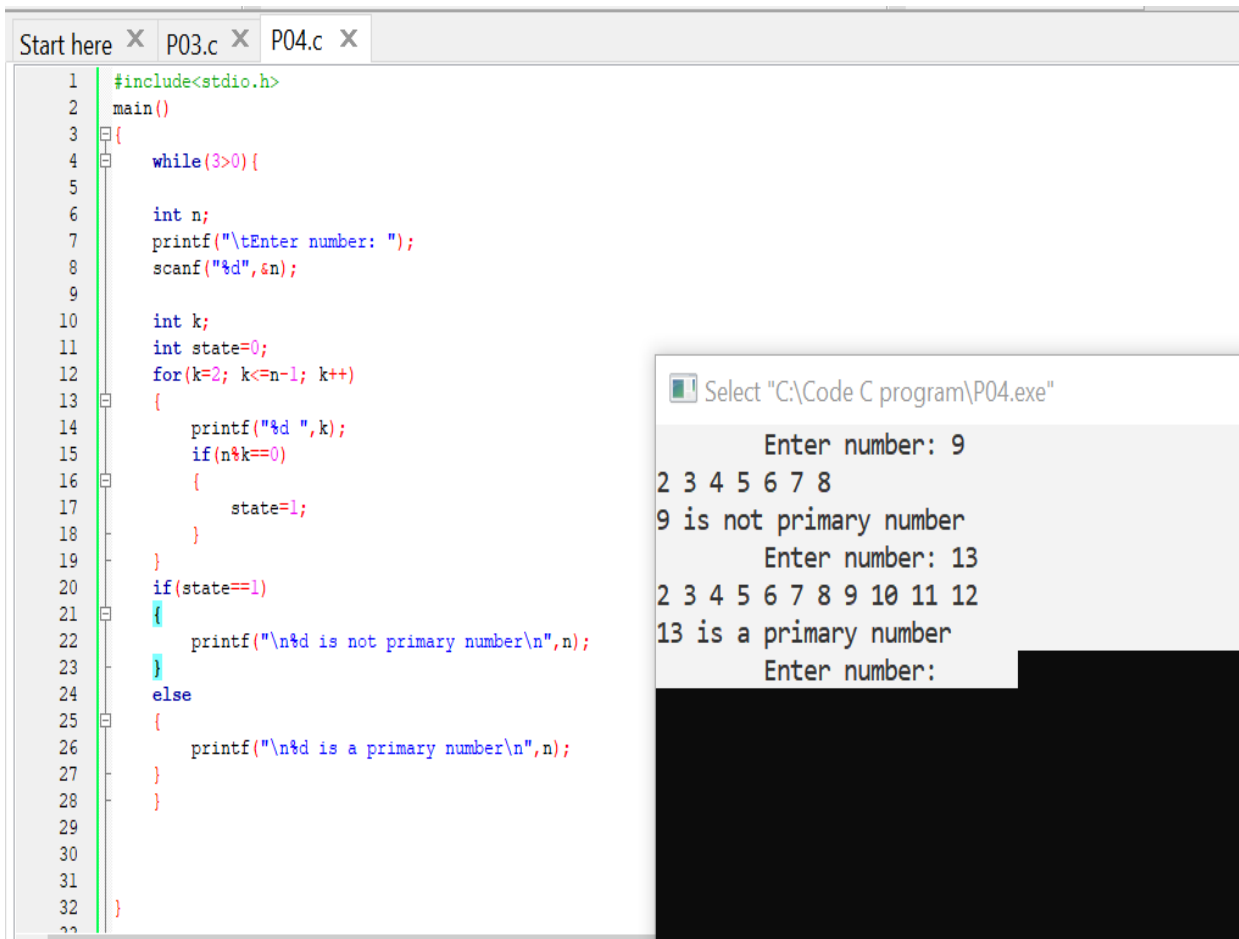

=> 20 79 193 284 999 ...

```
Start here ×   P03.c ×
1    #include<stdio.h>
2    #include<time.h>
3    main()
4    {
5        srand(time(0));
6        int n;
7        int min=10;
8        int max=90;
9        for(int k=0; k<10; k=k+1)
10       {
11           n=rand()%max + min;
12           printf("%d ",n);
13       }
14   }
15
```

```
Select "C:\Code C program\P03.exe"
26 29 44 54 56 95 55 83 51 29
Process returned 0 (0x0)   execution time : 0.028 s
Press any key to continue.
```

Problem4- Write a C program to check whether an input number is a primary number or not. Display "Primary" if it is a primary number. If not primary, display "NOT primary!".
Remark: Keep the program running again so that we can always check another input number.

Start here ✕ P03.c ✕ **P04.c** ✕

```c
1   #include<stdio.h>
2   main()
3   {
4       while(3>0){
5
6       int n;
7       printf("\tEnter number: ");
8       scanf("%d",&n);
9
10      int k;
11      int state=0;
12      for(k=2; k<=n-1; k++)
13      {
14          printf("%d ",k);
15          if(n%k==0)
16          {
17              state=1;
18          }
19      }
20      if(state==1)
21      {
22          printf("\n%d is not primary number\n",n);
23      }
24      else
25      {
26          printf("\n%d is a primary number\n",n);
27      }
28      }
29
30
31
32  }
```

■ Select "C:\Code C program\P04.exe"

```
        Enter number: 9
2 3 4 5 6 7 8
9 is not primary number
        Enter number: 13
2 3 4 5 6 7 8 9 10 11 12
13 is a primary number
        Enter number:
```

Problem5- Write a C program to find maximum number between 10 numbers entered by the user. You are not allowed to create 10 variables for that numbers.

Hint:

    -Use 'for' loop, make it run 10 times

    -Get each input inside loop. Check and update max value.

Start here ✕   P05.c ✕

```c
#include<stdio.h>
main()
{
    int limit,num,count,max;
    printf("Enter of limit: ");
    scanf("%d",&limit);

    printf("Enter %d numbers: ",limit);
    for (count=1; count<=limit; count++)
    {
        scanf("%d",&num);
        if(num>max || count==1)
        {
            max=num;
        }
    }

    printf("Maximum number is: %d \n",max);
}
```

"C:\Code C program\P05.exe"

```
Enter of limit: 10
Enter 10 numbers: 1 3 4 6 7 8 9 10 12 2
Maximum number is: 12

Process returned 0 (0x0)   execution time : 51.106 s
Press any key to continue.
```

Logs & others

Search results

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