ព្រះរាជាណាចក្រកម្ពុជា

ជាតិ សាសនា ព្រះមហាក្សត្រ

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: Write a c program to print natural number from 1 to n using while loop

a

Start here | Loop1.c

```c
#include<stdio.h>
main()
{
    int i=1,end,k;
    printf("print all natural number from 1 to : ");
    scanf("%d",&end);
    while(i<=end)
    {
        printf("%d ",i);
        i++;
    }
}
```

Select "C:\Code C program\Loop1.exe"

```
print all natural number from 1 to : 100
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43
44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83
84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100
Process returned 0 (0x0)   execution time : 3.983 s
Press any key to continue.
```

Problem2: write c programing to print all natural number in serverse n to 1 using while loop.

Start here | Loop1.c | Loop2.c

```c
#include<stdio.h>
main()
{
    int n;
    printf("Enter value of n: ");
    scanf("%d",&n);
    while(n>=1)
    {
        printf("%d ",n);
        n=n-1;
    }
}
```

Select "C:\Code C program\Loop2.exe"

```
Enter value of n: 100
100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61
 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21
 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
Process returned 0 (0x0)   execution time : 8.428 s
Press any key to continue.
```

Problem3: write c program to print all alphabets a to z using while loop.

Start here | Loop1.c | Loop2.c | Loop3.c

```c
#include<stdio.h>
main()
{
    char ch='a';
    printf("Alphabets from a to z are: ");
    printf("\n");
    while(ch<='z')
    {
        printf("%c ",ch);
        ch=ch+1;
    }
}
```

```
"C:\Code C program\Loop3.exe"
Alphabets from a to z are:
a b c d e f g h i j k l m n o p q r s t u v w x y z
Process returned 0 (0x0)   execution time : 0.035 s
Press any key to continue.
```

Problem4: write c program to print all even number between 1 to 100 using while loop.

a

Start here | Loop1.c | Loop2.c | Loop3.c | Loop4.c

```c
#include<stdio.h>
main()
{
    int counter;
    printf("Even number between 1 to 100 are: \n");
    counter=2;
    while(counter<=100)
    {
        printf("%d ",counter);
        counter=counter+2;
    }

}
```

```
"C:\Code C program\Loop4.exe"
Even number between 1 to 100 are:
2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80 82 8
4 86 88 90 92 94 96 98 100
Process returned 0 (0x0)   execution time : 0.037 s
Press any key to continue.
```

Problem5: write c program to print all odd number between 1 to 100.

Start here | Loop1.c | Loop2.c | Loop3.c | Loop4.c | Loop5.c

```c
#include<stdio.h>
main()
{
    int m;
    printf("Odd number between 1 to 100\n");
    m=1;
    while(m<=100)
    {
        printf("%d ",m);
        m=m+2;
    }
}
```

```
"C:\Code C program\Loop5.exe"
Odd number between 1 to 100
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 83
 85 87 89 91 93 95 97 99
Process returned 0 (0x0)   execution time : 0.044 s
Press any key to continue.
```

Problem6: write c program to count number of digits in a number.

Start here | Loop6.c

```c
#include<stdio.h>
main()
{
   int n;
    int count=0;
    printf("Enter a number: ");
    scanf("%d",&n);
    while(n!=0)
    {
        n=n/10;
        count++;
    }

    printf("\nThe number of digits in an integer is : %d",count);
}
```

```
"C:\Code C program\Loop6.exe"
Enter a number: 24698

The number of digits in an integer is : 5
Process returned 0 (0x0)   execution time : 12.513 s
Press any key to continue.
```

Problem7: Write c program to calculate sum of digits of number .

a

Start here | Loop6.c | Loop7.c

```c
#include<stdio.h>
main()
{


    int num, sum=0, r;
    printf("Enter any number: ");
    scanf("%d", &num);
    while(num>0)
    {
        r = num%10;
        sum = sum + r;
        num = num/10;
    }
    printf("\nSum of Digit = %d", sum);


}
```

```
"C:\Code C program\Loop7.exe"
Enter any number: 1459

Sum of Digit = 19
Process returned 0 (0x0)   execution time : 15.438 s
Press any key to continue.
```

Problem8: Write a c program to display all primary number between[n,m].

Start here | Loop8.c | Loop9.c

```c
#include<stdio.h>
main()
{
     int mn,mx;
    printf("Enter mn: ");scanf("%d",&mn);
    printf("Enter mx: ");scanf("%d",&mx);

    int k;
    printf("All primary number[%d,%d] are:",mn,mx);
    for(k=mn; k<=mx; k=k+1){
        int n;
        int state=0;
        for(n=2; n<k; n=n+1){
                if(k%n==0){
                    state=1;
                }
        }
        if(state==0){
            printf("%d ",n);

        }

}
}
```

```
"C:\Code C program\Loop8.exe"
Enter mn: 10
Enter mx: 1000
All primary number[10,1000] are:11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97 101 103 107 109 113 127 1
31 137 139 149 151 157 163 167 173 179 181 191 193 197 199 211 223 227 229 233 239 241 251 257 263 269 271 277 281 283 2
93 307 311 313 317 331 337 347 349 353 359 367 373 379 383 389 397 401 409 419 421 431 433 439 443 449 457 461 463 467 4
79 487 491 499 503 509 521 523 541 547 557 563 569 571 577 587 593 599 601 607 613 617 619 631 641 643 647 653 659 661 6
73 677 683 691 701 709 719 727 733 739 743 751 757 761 769 773 787 797 809 811 821 823 827 829 839 853 857 859 863 877 8
81 883 887 907 911 919 929 937 941 947 953 967 971 977 983 991 997
Process returned 0 (0x0)   execution time : 11.553 s
Press any key to continue.
```

Logs & others | Search results | File

Problem9: Write a c program enter a number and print severse.

```c
#include<stdio.h>
main()
{
    int n,revers=0,rem;
    printf("Enter of number: ");
    scanf("%d",&n);
    while(n!=0)
    {
        rem=n%10;
        revers=revers*10+rem;
        n/=10;
    }
    printf("Revers number is: %d ",revers);
}
```

```
"C:\Code C program\Loop9.exe"
Enter of number: 123456789
Revers number is: 987654321
Process returned 0 (0x0)   execution time : 13.416 s
Press any key to continue.
```

Problem10: Write a c program to print all ASCII codes 0 to 255 and character.

```c
#include<stdio.h>
main()
{
  int k;
  for(k=0; k<=255; k++)
  {
      printf("ASCII value of character %c = %d \n",k,k);
  }
}
```

```
"C:\Code C program\Loop10.exe"
ASCII value of character   = 0
ASCII value of character ☺ = 1
ASCII value of character ☻ = 2
ASCII value of character ♥ = 3
ASCII value of character ♦ = 4
ASCII value of character ♣ = 5
ASCII value of character ♠ = 6
ASCII value of character  = 7
ASCII value of character = 8
ASCII value of character          = 9
ASCII value of character
 = 10
ASCII value of character ♂ = 11
ASCII value of character ♀ = 12
 = 13 value of character
ASCII value of character ♫ = 14
ASCII value of character ☼ = 15
ASCII value of character ► = 16
ASCII value of character ◄ = 17
ASCII value of character ↕ = 18
ASCII value of character ‼ = 19
ASCII value of character ¶ = 20
ASCII value of character § = 21
ASCII value of character ▬ = 22
ASCII value of character ↨ = 23
ASCII value of character ↑ = 24
ASCII value of character ↓ = 25
ASCII value of character → = 26
ASCII value of character ← = 27
ASCII value of character ∟ = 28
```

Problem11: write c program to find power of number using for loop.

Start here | Loop8.c | Loop9.c | Loop10.c | Loop11.c

```c
#include<stdio.h>
#include<math.h>
main()
{
    int power,number,k=0,result=1;
    printf("Enter of number: ");scanf("%d",&number);
    printf("Enter of power: ");scanf("%d",&power);

    for(k=0; k<power; k++)
    {
        result=result*number;
    }
    printf("%d the power of %d is = %d \n",number,power,result);
}
```

"C:\Code C program\Loop11.exe"

```
Enter of number: 5
Enter of power: 3
5 the power of 3 is = 125

Process returned 0 (0x0)   execution time : 19.013 s
Press any key to continue.
```

Probnlem12: write c program to calculate factorial of number.

Start here | Loop8.c | Loop9.c | *Loop10.c | Loop12.c

```c
#include<stdio.h>
main()
{

    int power,number,k=0,result=1;
    printf("Enter of number: ");scanf("%d",&number);
    printf("Enter of power: ");scanf("%d",&power);

    for(k=0; k<power; k++)
    {
        result=result*number;
    }
    printf("%d^%d= %d \n",number,power,result);
}
```

"C:\Code C program\Loop12.exe"

```
Enter of number: 2
Enter of power: 5
2^5= 32

Process returned 0 (0x0)   execution time : 3.347 s
Press any key to continue.
```

Logs & others

Problem13: write c program to check a number is prime number or not.

Start here | Loop13.c

```c
#include<stdio.h>
int main()
{
    while(3>0)
    {


    int n;
    printf("\tEnter of number: ");
    scanf("%d",&n);
    int k;
    int state=0;
    for(k=2; k<=n/2; k++)
    {

        if(n%k==0)
        {
            state=1;
        }
    }
    if(state==0)
    {
        printf("\n%d It is prime number.\n",n);
    }
    else
    {
        printf("\n%d It is not prime number.\n ",n);
    }
    }

}
```

"C:\Code C program\Loop13.exe"

```
        Enter of number: 7

7 It is prime number.
        Enter of number: 9

9 It is not prime number.
        Enter of number:
```

Problem14: Write c program to print all prime number between 1 to n.

Start here | Loop13.c | Loop14.c

```c
#include<stdio.h>
int main()
{
    int n;
    printf("Enter of number: ");scanf("%d",&n);
    printf("primary number between 1 to %d \n",n);

    int k;
    for(k=2; k<=n; k++)
    {
        int i;
        int state=0;
        for(i=2; i<=k-1; i++)
        {
            if(k%i==0)
            {
                state=1;
            }
        }
       if(state==0)
       {
           printf("%d ",k);
       }
    }

}
```

"C:\Code C program\Loop14.exe"

```
Enter of number: 100
primary number between 1 to 100
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97
Process returned 0 (0x0)   execution time : 3.124 s
Press any key to continue.
```

ogs & others | Search results | File

Problem15: write c program to find sum of all prime number between 1 to n.

Start here | Loop13.c | Loop14.c | Loop15.c

```c
#include<stdio.h>
int main()
{
     int n,sum;
    printf("Enter of number: ");scanf("%d",&n);
    printf("primary number between 1 to %d \n",n);

    int k;
    for(k=2; k<=n; k++)
    {
        int i;
        int state=0;
        for(i=2; i<=k-1; i++)
        {
            if(k%i==0)
            {
                state=1;
            }
        }
       if(state==0)
        {
            printf("%d ",k);
            sum=sum+k;
        }
    }
    printf("\n\tsumation: %d",sum);
}
```

```
"C:\Code C program\Loop15.exe"
Enter of number: 100
primary number between 1 to 100
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97
        sumation: 1060
Process returned 0 (0x0)   execution time : 3.215 s
Press any key to continue.
```

Problem16: Write c program to check whether a number is palindrome or not.

Start here | Loop16.c

```c
#include<stdio.h>
main()
{
    int n,reversed=0,rem,org;
    printf("Enter of number: ");
    scanf("%d",&n);

    org=n;
    while(n!=0)
    {
        rem=n%10;
        reversed=reversed*10+rem;
        n/=10;
    }
    if(org==reversed)
    {
        printf("%d is a palindrome .",org);
    }
    else
    {
        printf("%d is not palindrome.",org);
    }
}
```

```
"C:\Code C program\Loop16.exe"
Enter of number: 1221
1221 is a palindrome .
Process returned 0 (0x0)   execution time : 8.601 s
Press any key to continue.
```

Logs & others

Start here | Loop16.c

```c
#include<stdio.h>
main()
{
    int n,reversed=0,rem,org;
    printf("Enter of number: ");
    scanf("%d",&n);

    org=n;
    while(n!=0)
    {
        rem=n%10;
        reversed=reversed*10+rem;
        n/=10;
    }
    if(org==reversed)
    {
        printf("%d is a palindrome .",org);
    }
    else
    {
        printf("%d is not palindrome.",org);
    }
}
```

```
"C:\Code C program\Loop16.exe"
Enter of number: 123
123 is not palindrome.
Process returned 0 (0x0)   execution time : 3.167 s
Press any key to continue.
```

Problem17: write c program to check a number is Armstrong or nit.

Start here | Loop16.c | Loop17.c

```c
#include<stdio.h>
main()
{
    while(3>2)
    {


    int num,rem,c,tem,sum=0;
    printf("Enter of number: ");
    scanf("%d",&num);
    tem=num;
    while(num>0)
    {
        rem=num%10;
        c=rem*rem*rem;
        sum=sum+c;
        num=num/10;
    }
    num=tem;
    if(sum==num)
    {
        printf("\t it is a armstong number\n");
    }
    else
    {
        printf("\t it is not armstong number\n");
    }
     }
}
```

```
"C:\Code C program\Loop17.exe"
Enter of number: 153
        it is a armstong number
Enter of number: 176
        it is not armstong number
Enter of number:
```

Problem19: Write a c program to check a number is perfect number or not.

Start here | Loop16.c | Loop17.c | *Loop19.c

```c
#include<stdio.h>
main()
{
    while(4>1)
    {
    int num,n,i,sum=0;
    printf("\n\tEnter your number: ");
    scanf("%d",&num);

    n=num;
    for(i=1; i<=(n-1); i++)
    {
        if(n%i==0)
        {
           sum= sum+i;
        }

    }
    if(sum==num)
    {
        printf("\t%d is perfect number",num);
    }
    else
    {
        printf("\t%d is not perfact number",num);
    }
    }
}
```

"C:\Code C program\Loop19.exe"

```
Enter your number: 18
18 is not perfact number
Enter your number: 6
6 is perfect number
Enter your number:
```