

CS-114 - Fundamental of Programing

Home Tasks - 4 (Lab Manual 4)

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School Of Mechanical & Manufacturing Engineering, NUST



Department of Mechanical Engineering

HOME TASK 1:

Write a program in C++ that prints the numbers from 1 to 150 except the multiples of 10.

Make use of the continue statement.

Code:

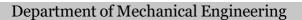
```
#include <iostream>
2
      using namespace std;
      int main()
5 🖳
6 //
          HOME TASK 1
7 <u>-</u>
8 <u>-</u>
           for(int i = 0; i<=150; i+=1){
          if(i % 10 == 0){
9
          continue;}
10
          cout<<i <<endl;}</pre>
           return 0;
11
```

Result:

```
34
        67
1
             101
2
    35
        68
             102
    36
        69
3
             103
    37
        71
4
             104
    38
5
        72
             105
    39
        73
6
             106
    41
        74
7
             107
    42
        75
8
             108
    43
        76
             109
    44
        77
11
             111
    45
        78
12
             112
    46
        79
13
             113
    47
        81
14
             114
    48
        82
15
             115
16
    49
        83
             116
    51
        84
17
             117
    52
        85
18
             118
    53
19
        86
             119
    54
        87
21
             121
    55
        88
22
             122
    56
        89
23
             123
    57
        91
24
             124
    58
        92
25
             125
    59
        93
26
             126
    61
        94
27
             127
    62
        95
28
             128
    63
29
        96
             129
    64
31
        97
             131
    65
        98
32
             132
    66
        99
33
             133
```

```
134
135
136
137
138
139
141
142
143
144
145
146
147
148
149
Process exited after 0.08552 seconds with return value 0
Press any key to continue . . .
```

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HOME TASK 2:

Write a C++ program to find the sum of digits of a number.

The sum of digits means adding all the digits of any number, for example, we take any number like 358. Its sum of all digits is 3+5+8=16.

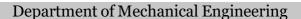
Code:

```
#include <iostream>
 2
      using namespace std;
      int main()
 4
 5 -
     {
// HOME TASK 2
          int num;
8
          // the given number
9
          int cnum;
10
          // cumulative number, as a digit is removed, eg: 4560 --> 456 --> 45 --> 4
12
          // the first digit from the right
          int sum;
cout<<"Please enter a number: "<<endl;</pre>
13
14
          cin>>num;
for(int d = 0; d+=1;){
              for(int i = 0; i<=10; i+=1){
18
19
                  cnum = num - i;
                  first = i;
20
                  if(cnum % 10 == 0 || cnum == 0){break;}
              sum = sum + first;
              num = cnum/10;
24
              if(cnum == 0){break;}
25
26
          cout<<"The sum is: "<<sum<<endl;
27
          return 0;
28
```

Result:

```
Please enter a number:
199
The sum is: 19
------
Process exited after 5.63 seconds with return value 0
Press any key to continue . . .
```

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HOME TASK 3:

Write a program in C++ to check whether a number is prime or not.

Code:

```
#include <iostream>
         using namespace std;
         int main()
 5 -
             HOME TASK 3
               It is simply impossible to compile a program that can detect primes with 100% accuracy.
        // It is simply impossible to compile a program that can de
// However using methods such as the Sieve of Erastothenes,
// one can eliminate non-primes upto a large range.
 9
              int n;
10
               int p;
              // the given number
12
               cout<<"Please enter the number:"<<endl;</pre>
               for(int j = 0; j+=1;){
15 -
16
                     if(n<=1){break;}</pre>
                    if(n % 2 == 0 && n != 2 ){break;}
if(n % 3 == 0 && n != 3 ){break;}
if(n % 5 == 0 && n != 5 ){break;}
17
18
19
                    if(n % 7 == 0 && n != 7 ){break;}
if(n % 11 == 0 && n != 11 ){break;}
if(n % 13 == 0 && n != 13 ){break;}
20
21
22
23
24
25
26
                    if(n % 17 == 0 && n != 17 ){break;}
if(n % 19 == 0 && n != 19 ){break;}
if((n-1)%6 == 0 && (n+1)%6 == 0){break;}
                    Every prime satisfies either one of the two expressions: 6x-1, or 6x+1, but never both
27
28
                     if(j=10){break;}
29
30
               if(p == 1){cout<<"the number is a prime"<<endl;}</pre>
               else{cout<<"the number is not a prime"<<endl;}</pre>
               return 0;
```

Result:

```
Please enter the number:

23
the number is a prime

-----
Process exited after 0.8033 seconds with return value 0
Press any key to continue . . .
```