

## Tema 42

The image shows a C++ IDE with three windows. The top-left window, titled 'numere.out', displays the output of the program: three lines of numbers. The top-right window, titled 'numar.in', displays the input: two lines of numbers. The bottom window, titled 'main.cpp', shows the source code. The code reads a number 'n' from 'numar.in', iterates through divisors from 2 to n/2, and prints them to 'numere.out'. If there are exactly two divisors, it prints 'DA'; otherwise, it prints 'NU'.

```
numere.out x
1 2 3 6 7 9 14 18 21 42 63
2 12
3 NU

numar.in x
1 126
2

main.cpp x
1 #include <iostream>
2 #include<fstream>
3 using namespace std;
4 int main()
5 { ifstream f("numar.in");
6   ofstream g("numere.out");
7   int d,n,nr=2;
8   f>>n;
9   for(d=2;d<=n/2;d++)
10      if(n%d==0)
11         {
12            nr++;
13            g<<d<<' ';
14         }
15   g<<endl<<nr<<endl;
16   if(nr==2)g<<"DA";
17   else g<<"NU";
18   f.close();
19   g.close();
20   return 0;
21 }
```

## Tema 43

```
numere.out x
1 2 4 5 10 20 25 50 100 125 250
2 436
3 125

numar.in x
1 500
2

main.cpp x
1 #include <iostream>
2 #include<fstream>
3 using namespace std;
4 int main()
5 {
6     ifstream f("numar.in");
7     ofstream g("numere.out");
8     int d,n,s=0,p=1;
9     f>>n;
10    for(d=2;d<=n/2;d++)
11        if(n%d==0)
12            {
13                if(d%2==0) s=s+d;
14                else p=p*(d%10);
15                g<<d<<' ';
16            }
17    g<<endl<<s<<endl<<p;
18    f.close();
19    g.close();
20    return 0;
}
```

## Tema 44

The image shows a C++ IDE with three windows. The 'numere.out' window displays the output '1 148 6'. The 'numar.in' window displays the input '1 841'. The 'main.cpp' window shows the following code:

```
1  #include <iostream>
2  #include<fstream>
3  using namespace std;
4  int main()
5  {   ifstream f("numar.in");
6     ofstream g("numere.out");
7     long d,n,ogl=0;
8     int nr=2;
9     f>>n;
10    while(n)
11    {
12        ogl=ogl*10+n%10;
13        n=n/10;
14    }
15    for(d=2;d<=ogl/2;d++)
16        if(ogl%d==0)nr++;
17    g<<ogl<<' '<<nr;
18    f.close();
19    g.close();
20    return 0;
21 }
```

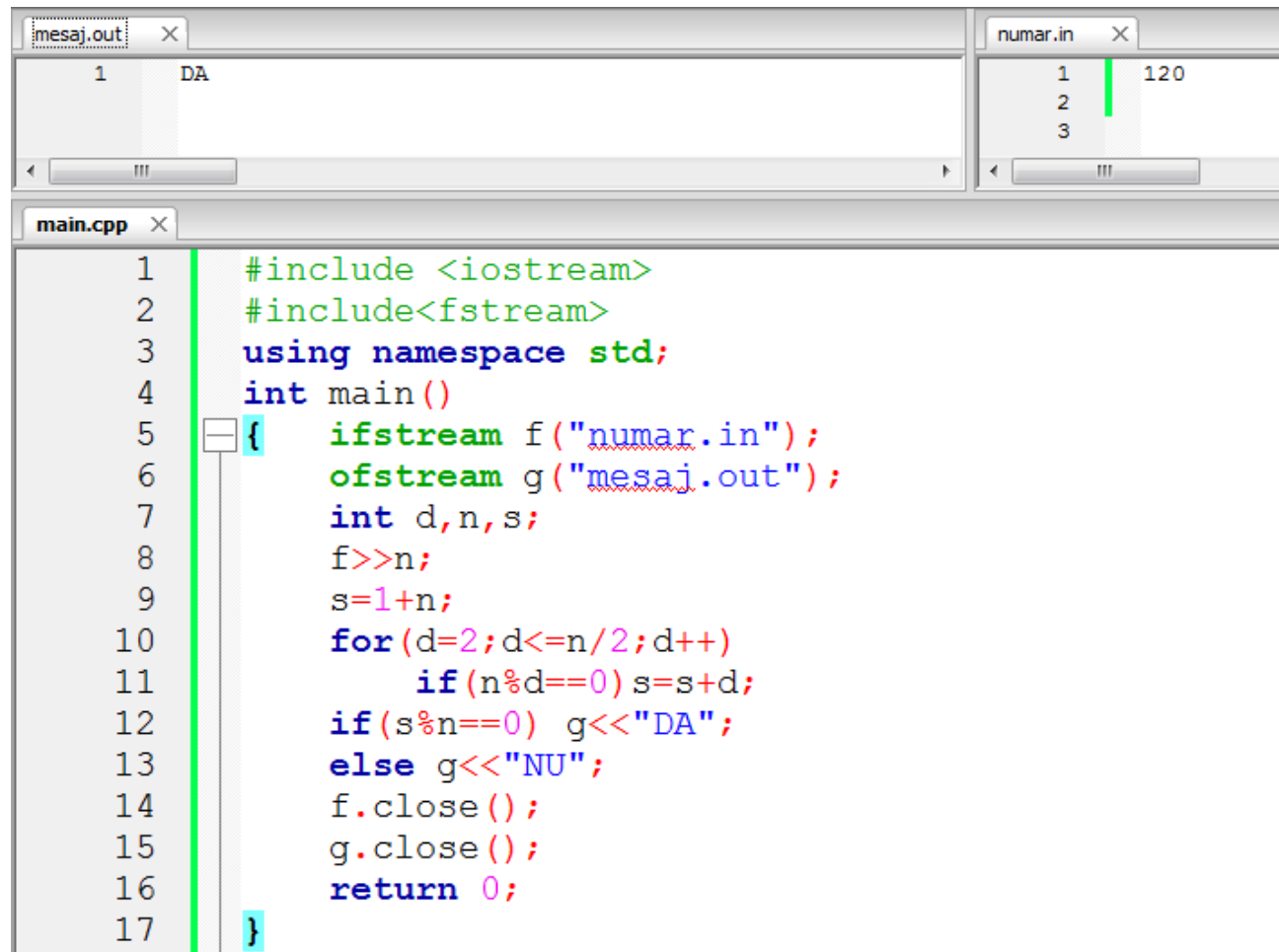
## Tema 45

```
numere.out x
1 perfect

numar.in x
1 6
2
3

main.cpp x
1 #include <iostream>
2 #include<fstream>
3 using namespace std;
4 int main()
5 {
6     ifstream f("numar.in");
7     ofstream g("numere.out");
8     int d,n,s;
9     f>>n;
10    s=1+n;
11    for(d=2;d<=n/2;d++)
12        if(n%d==0) s=s+d;
13    if(2*n==s) g<<"perfect";
14    else g<<"nu este perfect";
15    f.close();
16    g.close();
17    return 0;
18 }
```

## Tema 46



```
mesaj.out x
1 DA
numar.in x
1 120
2
3
main.cpp x
1 #include <iostream>
2 #include<fstream>
3 using namespace std;
4 int main()
5 { ifstream f("numar.in");
6   ofstream g("mesaj.out");
7   int d,n,s;
8   f>>n;
9   s=1+n;
10  for(d=2;d<=n/2;d++)
11     if(n%d==0) s=s+d;
12  if(s%n==0) g<<"DA";
13  else g<<"NU";
14  f.close();
15  g.close();
16  return 0;
17 }
```

## Tema 47

```
numere.out x
1 1280 1452 1476 1568 1575 1692 1792 2450 2475 3468 3492 3675 4572 5684 5780

numar.in x
1 18
2

main.cpp x
2 #include<fstream>
3 using namespace std;
4 int main()
5 { ifstream f("numar.in");
6   ofstream g("numere.out");
7   int n,nr1=0,nr2;
8   long x,d;
9   f>>n;
10  for (x=1000;x<=9999;x++)
11  {
12      nr2=2;
13      for(d=2;d<=x/2;d++)
14          if(x%d==0)nr2++;
15      if(n==nr2 && x/1000%10<x/100%10 && x/100%10<x/10%10)
16      {
17          nr1++;
18          g<<x<<' ';
19      }
20  }
21  if(nr1==0) g<<"nu exista";
22  f.close();
23  g.close();
24  return 0;
25 }
```

## Tema 48

```
numere.out x
1 110 114 222 232 255 266 282 322 344 366 399 424 434 442 455 474 488 494 555 595 606 646 663 664 665 686 776 777 808 822 885 969 994 999

numar.in x
1 8

main.cpp x
2 #include<fstream>
3 using namespace std;
4 int main()
5 { ifstream f("numar.in");
6   ofstream g("numere.out");
7   int n,nr1=0,nr2;
8   long x,d;
9   f>>n;
10  for (x=100;x<=999;x++)
11  {
12    nr2=2;
13    for(d=2;d<=x/2;d++)
14      if(x%d==0)nr2++;
15    if(n==nr2 && (x/100==x/10%10 || x/100==x%10 || x/10%10==x%10))
16    {
17      nr1++;
18      g<<x<<' ';
19    }
20  }
21  if(nr1==0) g<<"nu exista";
22  f.close();
23  g.close();
24  return 0;
25 }
```

## Tema 49

```
#include <iostream>
#include<fstream>
using namespace std;
int main ()
{
    ifstream f("numar.in");
    ofstream g("numere.out");
    int nr1=0,nr2;
    long long x,ogl,y,d;
    while(f>>x)
    {
        ogl=0;y=x;
        while(y)
        {
            ogl=ogl*10+y%10;
            y=y/10;
        }
        nr2=0;
        for(d=2;d<=ogl/2;d++)
            if(ogl%d==0)nr2++;
        if(nr2==0 && ogl!=0 &&ogl!=0)
            {g<<x<<' ' ; nr1++; }
    }
    if(nr1==0) g<<"nu exista";
    f.close();
    g.close();
    return 0;
}
```



## Tema 50

The image shows a C++ IDE with three windows: 'numere.out', 'numar.in', and 'main.cpp'. The 'main.cpp' window displays the following code:

```
1 #include <iostream>
2 #include<fstream>
3 using namespace std;
4 int main()
5 {
6     ifstream f("numar.in");
7     ofstream g("numere.out");
8     int nr1=0,nr2;
9     long long x,d,s;
10    while(f>>x)
11    {
12        s=0;
13        for(d=2;d<=x/2;d++)
14            if(x%d==0)s=s+d;
15        if(s%2==0)
16            {g<<x<<' ' ; nr1++; }
17    }
18    if(nr1==0) g<<"nu exista";
19    f.close();
20    g.close();
21    return 0;
22 }
23
```

The 'numar.in' window shows the input data:

```
1 24 10 4159 88 7422 2689 2596 22 148 16
2
3
```

The 'numere.out' window shows the output data:

```
1 4159 2689 16
```