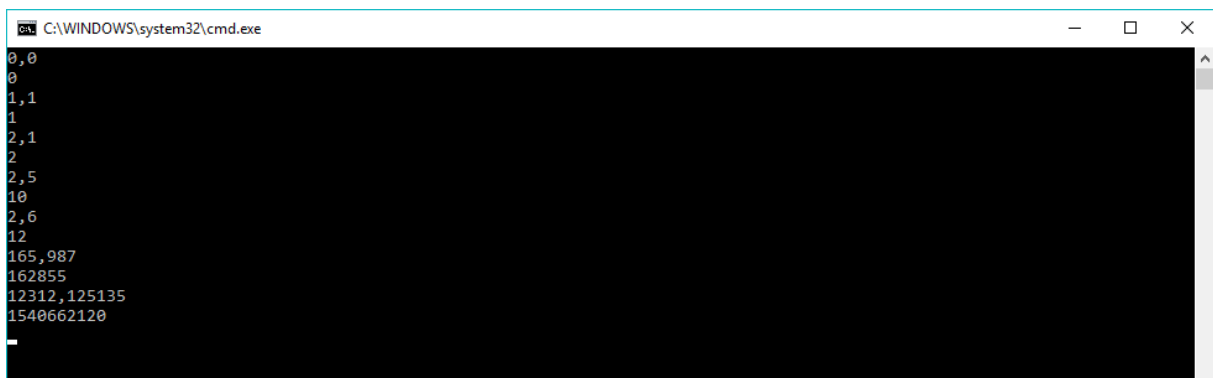


Aufgabe 1

```
#include <stdio.h>
int main(int argc, char* argv[]) {
    int number1 = 20;
    int number2 = 10;
    int memory = 0;
    int result = 0;
    if (number1 > number2) {
        memory = number1;
        number1 = number2;
        number2 = memory;
    }
    memory = number2;
    while (number1 != 0) {
        if (number1 % 2 != 0) {
            result = result + memory;
        }
        number1 = number1 / 2;
        number2 = number2 * 2;
        memory = number2;
    }
    printf("%d\n", result);
    return 0;
}
```



```
C:\WINDOWS\system32\cmd.exe
0,0
0
1,1
1
2,1
2
2,5
10
2,6
12
165,987
162855
12312,125135
1540662120
-
```

Aufgabe 2

```
#include <stdio.h>
int main(int argc, const char* argv[]) {
    int input = 1;
    printBi(input);
    //USER INPUT
    int userIn = 1;
    while (userIn >= 0) {
        printf("\nPlease input an integer value: ,to end enter a value
x<0\n");
        scanf("%d", &userIn);
        printBi(userIn);
    }
    //END USER INPUT
    return 0;
}
int printBi(int number) {
    if (number > 0) {
        printBi(number / 2);
        printf("%d", number % 2);
    }
}
```

```

    }
    else { printf("0"); }
    return 0;
}

```

```

C:\WINDOWS\system32\cmd.exe

Please input an integer value: ,to end enter a value x<0
0
Please input an integer value: ,to end enter a value x<0
1
01
Please input an integer value: ,to end enter a value x<0
2
010
Please input an integer value: ,to end enter a value x<0
3
011
Please input an integer value: ,to end enter a value x<0
4
0100
Please input an integer value: ,to end enter a value x<0
5
0101
Please input an integer value: ,to end enter a value x<0
10
01010
Please input an integer value: ,to end enter a value x<0
5005
01001110001101
Please input an integer value: ,to end enter a value x<0

```

Aufgabe 3

```

1  #include <stdio.h>
2  int main(int argc, const char* argv[]) {
3      printf("n | n^2\n-----\n");
4      for (int n = 1; n < 26;n+=1) {
5          if (n < 10) {
6              printf("%d | %d\n", n, n*n);
7          } else {
8              printf("%d | %d\n", n, n*n);
9          }
10     }
11     return 0;
12 }
13

```

```

Auswählen C:\WINDOWS\system32\cmd.exe
n      n^2
-----
1      1
2      4
3      9
4      16
5      25
6      36
7      49
8      64
9      81
10     100
11     121
12     144
13     169
14     196
15     225
16     256
17     289
18     324
19     361
20     400
21     441
22     484
23     529
24     576
25     625
Drücken Sie eine beliebige Taste . . .

```

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Aufgabe 4

Gedanke: Syntaxdiagramm umsetzen

```

SimpleCalc(String str):Real
Real number1 = 0;
Real number2 = 0;
Integer position = 0;
Character operation;
    if
((str[0]=='c')AND(str[1]=='a')AND(str[2]=='l')AND(str[3]=='c')AND(str[4]=='
') then
    Integer i=5
        while ((i<str[].length )AND(str[i]!=' ')) do
            number1 = 10^position*number1+(str[i]-48)
            position+=1
            i+=1;
        end while
        i+=1;
        for(i;i<str[].length;i+=1)
            if (str[i]!=' ') then
                operation = str[i]
                i=i+2
                position=0
                while ((i<str[].length )AND(str[i]!=' ')) do
                    number2 = 10^position*number2+(str[i]-48)
                    position+=1
                    i+=1;
                end while
                switch(operation)
                    case '+':    number1 = number1 + number2 break
                    case '-':    number1 = number1 - number2 break
                    case 'x':    number1 = number1 * number2 break
                    case '/':    number1 = number1 / number2 break
                    default: //Fehler
                end switch
                i-=1
            end if
        end for
    end if
end for

```

```
    end if
    number1 = ((int)number1*100)/100.0
    return number1
end SimpleCalc
```