1- Trace the following program and predict the output.

```c
// www.gammal.tech

#include<stdio.h>
int main() {
    int x, count = 0;
    while(scanf("%d", &x) && x != -1)
        if(x % 2 == 0)
            count++;
    printf("%d", count);
}
```

If the input

```
2
3
-1
```

Solution

```
1
```

2- Trace the following program and predict the output.

```c
// www.gammal.tech

#include<stdio.h>
int main() {
    int x, sum = 0;
    while(scanf("%d", &x) && x != -1)
        if(x > 0)
            sum += x;
    printf("%d", sum);
}
```

If the input

```
1
2
-9
-5
-1
```

Solution

```
3
```

3- Trace the following program and predict the output.

```c
// www.gammal.tech

#include<stdio.h>
int main() {
    int x, max = 0;
    while(scanf("%d", &x) && x != -1)
        if(x > max)
            max = x;
    printf("%d", max);
}
```

If the input

```
5
9
-9
1
-1
```

Solution

```
9
```

4- Trace the following program and predict the output.

```c
// www.gammal.tech

#include<stdio.h>
int main() {
    int x;
    long long product = 1;
    while(scanf("%d", &x) && x != -1)
        if(x < 0)
            product *= x;
    printf("%lld", product);
}
```

If the input

```
5
2
3
-1
```

Solution

```
1
```

5- Trace the following program and predict the output.

```c
// www.gammal.tech

#include<stdio.h>
int main() {
    int x, count = 0;
    while(scanf("%d", &x) && x != -1)
        while(x) {
            count++;
            x /= 10;
        }
    printf("%d", count);
}
```

If the input

```
123
456
-1
```

Solution

```
6
```

6- Trace the following program and predict the output.

```c
// www.gammal.tech

#include<stdio.h>
int isPrime(int x) {
    if(x < 2)
        return 0;
    for(int i = 2; i * i <= x; i++)
        if(x % i == 0)
            return 0;
    return 1;
}
int main() {
    int x, count = 0;
    while(scanf("%d", &x) && x != -1)
        if(isPrime(x))
            count++;
    printf("%d", count);
}
```

If the input

```
1
2
3
4
-1
```

Solution

```
2
```

7- Trace the following program and predict the output.

```c
// www.gammal.tech

#include<stdio.h>
int isConsonant(char c) {
    return !(c == 'a' || c == 'e' || c == 'i' || c == 'o' || c == 'u' || c == 'A' || c == 'E' || c
== 'I' || c == 'O' || c == 'U');
}
int main() {
    char c;
    int count = 0;
    while(scanf(" %c", &c) && c != '#')
        if(isConsonant(c))
            count++;
    printf("%d", count);
}
```

If the input

```
a
j
e
L
#
```

Solution

```
2
```

8- Trace the following program and predict the output.

```c
// www.gammal.tech

#include<stdio.h>
int main() {
    int x;
    long long sum = 0;
    while(scanf("%d", &x) && x != -1)
        sum += (long long)x * x;
    printf("%lld", sum);
}
```

If the input

```
1
2
3
5
-1
```

Solution

```
39
```

9- Trace the following program and predict the output.

```c
// www.gammal.tech

#include <stdio.h>
int hasOddDigit(int num) {
    while (num) {
        if ((num % 10) % 2 != 0)
            return 1;
        num /= 10;
    }
    return 0;
}
int main() {
    int x, count = 0;
    while (scanf("%d", &x) && x != -1)
        if (x > 0 && hasOddDigit(x))
            count++;
    printf("%d", count);
}
```

If the input

```
123
456
-1
```

Solution

```
2
```

10- Trace the following program and predict the output.

```c
// www.gammal.tech

#include <stdio.h>
int main() {
    int x, min = 2147483647; // Initializing min to the maximum possible int value
    while (scanf("%d", &x) && x != -1)
        if (x < min)
            min = x;
    printf("%d", min);
}
```

If the input

```
5
1
-9
0
-1
```

Solution

```
-9
```