# Converting from Base 10 to Base 2

[9 marks] Write a program that uses the division algorithm (below) to convert integers entered by the user in base 10 (decimal) to base 2 (binary).

Set result to the empty string
Let q represent the base 10 number that will be converted to binary

Repeat
    Compute the remainder that results when q is divided by 2
    Convert the remainder into a string and add it to the beginning of result
    Divide q by 2, discarding any remainder, and store the result of the division into q
Until q is equal to 0

Each integer entered by the user will be on its own line. Your program should continue converting numbers entered by the user until the user enters a value less than 0. No output should be displayed if the first value entered by the user is less than 0.

Sample Output:

Enter an integer: **8**
0 base 10 equals 1000 base 2
Enter an integer: **65535**
0 base 10 equals 1111111111111111 base 2
Enter an integer: **0**
0 base 10 equals 0 base 2
Enter an integer: **-1**

Use the following lines to create your program. Lines can be used multiple times. Some lines may not be needed.

```
1: if n == 0:
2: if n >= 0:
3: n = int(input("Enter an integer: "))
4: print(n, "base 10 equals", result, "base 2")
5: q = 0
6: q = n
7: q = q % 2
8: q = q // 2
9: r = q % 2
12: r = q // 2
13: result = ""
14: result = 0
15: result = result + r
16: result = str(r) + result
17: while n == 0:
18: while n >= 0:
19: while q == 0:
23: while q > 0:
24: while q >= 0:
```