

Modulo Practice %

What is modulo?

It is part of the arithmetic operators used to find a remainder.

Think about it -

in your head you can divide 9 by 2 and know the remainder is 1

$9 / 2 = 4$ with a remainder of 1

But how does a computer do this? This is where the built in **Modulo Operator (%)** helps out.

$9 \% 2 = 1$ (notice we are using a different sign here)

So, to find the actual result for a division you might write:

```
int div_result = 9;
```

```
div_result = 9 / 2;
```

This would give you a result of 4 in div_result

To find the remainder you might write:

```
int div_result = 9;
```

```
int mod_result = div_result % 2;
```

This would give you a result of 1 in mod_result

Assignment:

Create a new program called **mod.c** within your chapter1 folder

Compile and execute to be sure it works - then **run style50**

** you can't run the check50 as this is not a CS50 assignment but one that I wrote...*

```
#include <stdio.h>
#include <cs50.h>
/* this program will take in an integer from 1 to 100
 / check to see if it is even or odd
 / and then print the answer
 */
int main(void)
{
    printf("Enter a number from 1 to 100: ");
    int number = get_int();
    // if number is out of range give error message and end
    if (number < 0 || number > 100)
    {
        printf("That input does not make sense - goodbye!\n");
        return 1;
    }
    // save the remainder and print it out
    // to demonstrate how modulus works
    int mod_result = (number % 2);
    printf("mod result %d\n", mod_result);

    // check to see if number is even or odd and print message
    if (number % 2 == 0)
    {
        printf("Number %d is even\n", number);
    }else
    {
        printf("Number %d is odd\n", number);
    }
}
```