**Exercise 2**

**4.5 – Four basic elements in counter-controlled repetition:**

1. A counter variable.
2. The initial value of the counter.
3. The condition to test.
4. The update to the counter.

**4.6 – while vs for loop:**

* while is best when you don’t know how many times it'll run.
* for is great when you know the exact number of times.

**4.7 – When to use do...while:**

Use do...while when you want the loop to run at least once **before** checking a condition (like asking user input once before checking if it's valid).

**4.8 – break vs continue:**

* break stops the whole loop.
* continue skips to the next loop cycle.

**4.10 – What does the program do**

It prints 10 rows of 5 @ symbols each

**4.11 – Find the Smallest Value**

Use a loop to take user input and track the smallest one.

**4.12 – Product of Odd Integers from 1 to 15**

Use a for loop, multiply only odd numbers.

**4.13 – Factorials of 1 to 20**

Use long and print the factorials in a table. Issue with 100!: too large for long.

**4.14 – Modified Interest Program**

Use a for loop for rates from 5% to 10% and calculate compound interest.

**4.30 – Global Warming Quiz**

* Create 5 multiple choice Qs.
* Track correct answers.
* Show result message based on score.

**4.31 – FairTax Estimator**

Ask user for expenses in different categories, then calculate tax as 23% of total.