**COMP 2247 Fall 2025 Assignment 5 Total 10 points**

1. Write a program that uses two **recursive** methods to do the following:
   1. The first method calculates and returns the value of **2ⁿ** for n>=1. For example, if the user enters 5, then 25 = 32.
   2. The second method calculates and returns the sum of all positive integers from 1 up to the number passed as the argument. For example, if 5 is passed as the argument, the method will return the sum of 1, 2, 3, 4, and 5.
   3. In the main method, call these methods with user input and display the results.
2. Assume that there are **N** programming languages to learn, and you must learn **X** of them. How many possible combinations can you learn?

For example, there are 3 languages: Java, Python, and C++, you must learn 2 of them. Then there are 3 combinations: [Java, Python], [Java, C++], and [Python, C++].

Let *function*(n, x) represent the number of combinations, given *n* languages to choose from and *x* languages to learn, the formula is shown below:

*function*(n, x) = *function*(n-1) + *function*(n-1, x-1)

Write a program to solve this problem. The partially completed program is as follows. You just need to complete the base cases.

A screenshot of a computer program

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Sample Run Data: n=6, x=4 -> Combinations: 15

**Due date: Wednesday, 10/22/2025**

* To receive full credit, the assignment must be submitted by the due date. Late submissions will incur a penalty of 5% per day.
* To submit the assignment, make a zip file of the entire project and upload it to D2L. If you wrote the program with individual source files, upload them to D2L.
* For the written questions, submit the answer sheet to D2L.

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