

COMP 482 Project 8

BACKGROUND: One last dynamic programming challenge. This one is for all the marbles. You are standing in 2D grid (pictured below as a 4x6 matrix). Your goal is to simply get to the goal...but there is one problem. You forgot how to turn any direction but down and right. (you can't go up and left). How many possible ways can you reach the goal only going right and down?

you					
					goal

OBJECTIVE: Using either top-down or bottom-up dynamic programming return the total possible ways you can get to the goal.

- Remember that you cannot go up or left, only down and right.
- You will be given 2 integers in the input8.txt representing the grid size the first number will be the number of rows, the second number will be the number of columns. Neither number can be 0.

Input Format: The input file will be called input8.txt and be in the same directory as the java and class files. The format of input8.txt will be a standard text file containing whitespace (spaces/tabs/newlines) separated integers. Please note to put a single space between numbers to act as a delimiter (see examples below)!

Output: print the total number of different ways you can take to reach the goal.

EXAMPLE #1: Given an input8.txt file of:

2 3

you		
		goal

Then the output would be:

3

Path 1 go along the top row and go down at the end

Path 2 go down from starting cell and go right until the end

Path 3 go right once, then down, the right to the end

EXAMPLE #2: Given an input8.txt file of:

3 3

you		
		goal

Then the output would be:

6

Path 1 go right until final column, then go down to goal

Path 2 go right once, then down once, then right once, then down

Path 3 go right once, then down to final row, then right

Path 4 go down once, go right to final column, then down

Path 5 go down once, go right once, go down once, then go right

Path 6 go down to final row, go right to goal

Project information and Project Submissions:

- Projects will be done **ONLY** in **Java** (No other languages will be accepted)
- Students should begin to work on projects when the project specifications are released.
- Projects will be released as early as possible to students, and you are encouraged to complete the projects as early as possible. Even if a topic has yet to be covered, if students have taken the time to learn the material beforehand, feel free to attempt projects early and submit them early.
- You will be able to submit your project as many times as you wish until the deadline given. **(For a regrade you must submit the project at least 7 days prior to the deadline otherwise there will be no regrade)**
- **Late projects will not be accepted.**

Projects must be submitted as follows:

- You must submit your project to Canvas **ONLY**. Email submissions will not be accepted.
- The file must be submitted in a “.zip” format
- The “.zip” file should be named with your First and Last name with the project number at the end (Example: DinoBiell.zip)
- If working in visual studio please do not zip the entire project. Only zip the “.java” file (doing this will cost you points!)
- you must use the DEFAULT package, if not sure how to do this, ask the professor.
- Failure to comply with the rules above will result in a major loss of points on the project!

Grading Rubric: When grading your projects I will assign grades based on the following criteria:

- Does the project work according to the specification including reasonable time complexity? – **50%**
- Does the project utilize the concepts requested in the specification? – **30%**
- Is the code provided in the project well formatted? – **10%**
- Does the code contain sufficient and useful comments to explain sections of the code? – **10%**