HTTP5101 Assignment 2

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The Canadian Computing Competition (CCC) is a yearly event hosted by the University of Waterloo. The past contests are available through the link below.

https://cemc.math.uwaterloo.ca/contests/past_contests.html#ccc

This assignment requires you to:

- Create a WebAPI Method which solves a J1 Problem
- Create a WebAPI Method which solves a J2 Problem
- Initiative: Create a WebAPI Method which attempts a J3 or higher problem.

The questions on the CCC assume that the program input works through a terminal. Below are two example questions which have been modified to work with WebAPI HTTP request inputs rather than terminal inputs. You may solve the two examples below; or look through the past contests for problems.

Adapted J1 - The New CCC (Canadian Calorie Counting)

Original Source : https://cemc.math.uwaterloo.ca/contests/computing/2006/stage1/juniorEn.pdf

At Chip's Fast Food emporium there's a very simple menu. Each food item is selected by entering a digit choice.

Here are the 3 burger choices: 1 - Cheeseburger (461 Calories) 2 - Fish Burger (431 Calories) 3 - Veggie Burger (420 Calories) 4 - no burger	Here are the three drink choices: 1 - Soft Drink (130 Calories) 2 - Orange Juice (160 Calories) 3 - Milk (118 Calories) 4 - no drink
Here are the 3 side order choices: 1 - Fries (100 Calories) 2 - Baked Potato (57 Calories) 3 - Chef Salad (70 Calories) 4 - no side order	Here are the three dessert choices: 1 - Apple Pie (167 Calories) 2 - Sundae (266 Calories) 3 - Fruit Cup (75 Calories) 4 - No Dessert

Write a program that will compute the total Calories of the meal.

Input Specification

GET : http://localhost/api/J1/Menu/{burger}/{drink}/{side}/{dessert}

{burger} - Integer representing the index burger choice
{drink} - Integer representing the index drink choice
{side} - Integer representing the index side choice
{dessert} - Integer representing the index dessert choice

Output Specification

Example HTTP request	Example Response
GET ../api/J1/Menu/4/4/4/4	Your total calorie count is 0
GET ../api/J1/Menu/1/2/3/4	Your total calorie count is 691

Adapted J2 - Roll the Dice

Original Source : https://cemc.math.uwaterloo.ca/contests/computing/2006/stage1/juniorEn.pdf

Diana is playing a game with two dice.

- One dice has *m* sides labelled 1, 2, 3 ..., *m*
- The other dice has *n* sides labelled 1, 2, 3, …, *n*

Write a program which determines how many ways she can roll the value of 10.

For example, when the first die has 6 sides (m=6) and the second die has 8 sides (n=8), there are 5 ways to get the sum 10.

Value on first die (*m=6)*	Value on second die (*n=8*)	Sum
2	8	10
3	7	10
4	6	10
5	5	10
6	4	10

Input Specification

GET: http://localhost/api/J2/DiceGame/{m}/{n}

{m} - positive integer representing the number of sides on the first die
{n} - positive integer representing the number of sides on the second die

Example HTTP request	Example Response
GET ../api/J2/DiceGame/6/8	There are 5 total ways to get the sum 10.
GET ../api/J2/DiceGame/12/4	There are 4 ways to get the sum 10.
GET ../api/J2/DiceGame/3/3	There are 0 ways to get the sum 10.
GET ../api/J2/Dicegame/5/5	There is 1 way to get the sum 10.

5101 Assignment Rubric

	Level 1 (0-25%)	Level 2 (25-50%)	Level 3 (50-75%)	Level 4 (75-100%)
Git	Work is not successfully submitted on a github repository		Work is successfully submitted on a github repository.	
Quantitative	Multiple (4+) Quantitative issues. The project needs significant improvement to meet professional development standards.	Several (2+) Quantitative issues.There are several areas of improvement needed to meet professional development standards.	One Quantitative issue. A few fixes can bring this to professional quality standards.	Zero Quantitative issues. Work is at a professional level. Work is complete, maintainable, scalable, robust, efficient, extensible, and reusable.
Qualitative	Multiple (4+) Qualitative issues. The project needs significant improvement to meet professional development standards.	Several (2+) Qualitative issues. There are several areas of improvement needed to meet professional development standards.	One Qualitative issue. A few fixes can bring this to professional quality standards.	Zero qualitative issues. Work is at a professional level. Work is concise, readable, well-documented, tested, and includes evidence of debugging.
Semantic	Multiple (4+) Semantic issues. The project needs significant improvement to meet professional development standards.	Several (2+) Semantic issues. There are several areas of improvement needed to meet professional development standards.	One Semantic issue. A few fixes can bring this to professional quality standards.	Zero semantic issues. Work is at a professional level. The work achieved is considered and aligned with the context of the project.
Initiative	The content of the work meets the bare minimum requirements.	The content of the work meets the requirements, and there is an attempt to try something new. Not working code is commented out.	The content of the work exceeds the expectations of the assignment. Not working code is commented out.	The content of the work exceeds the expectations of the assignment, and the code runs adequately.