Module 1 Day 5

Command-Line Programs

What makes an application?

- Program Data
  - ✓ Variables & .NET Data Types
  - ✓ Arrays
  - ❑ More Collections (list, dictionary, stack, queue)
  - ❑ Classes and objects (OOP)
- Program Logic
  - ✓ Statements and expressions
  - ✓ Conditional logic (if)
  - ✓ Repeating logic (for, foreach, do, while)
  - ✓ Methods (functions / procedures)
  - ❑ Classes and objects (OOP principles)
  - ❑ Frameworks (MVC)
- Input / Output
  - User
    - ➢ Console read / write
    - ❑ HTML / CSS
    - ❑ Front-end frameworks (HTML / CSS / JavaScript)
  - Storage
    - ❑ File I/O
    - ❑ Relational database
    - ❑ APIs

Command-Line Programs

- Console I/O (Standard I/O)
  - Console.Write method
  - Console.WriteLine method
    - Using Placeholders
  - Console.ReadLine method
- Converting a string to a number
  - Parse method

```
string numAsString = "123";
int num = int.Parse(numAsString);
```

Splitting and joining strings

- Split method

```
string numbersString = "1,2,3,4";
string[] numbers = numbersString.Split(",");
```

  - Separates the string into pieces, looking for the “separator” character
  - Returns an array of strings
- Join method

```
string newString = string.Join('-', numbers);
```

  - Kind of “the opposite of” Split
  - Joins all elements of the array into a single string, inserting the “separator” character between them

Creating a Command-Line Program

- Ask the user their height in inches
- Tell them how many feet / inches tall they are

Creating a Command-Line Program

- Count, Average and Sum
- User enters a comma-delimited list of numbers
- Return to the user the Count, Sum and Average of the numbers
- Ask if they'd like to do another

Creating a Command-Line Program

- Tip calculator
- Ask the user how much the total bill is
- Ask how good the service was (poor, good, great, wow!)
- Calculate the tip (10%, 15%, 20%, 25%)
- Tell the user the bill amount, tip amount, and total amount
- Ask if they'd like to do another

Creating a Command-Line Program

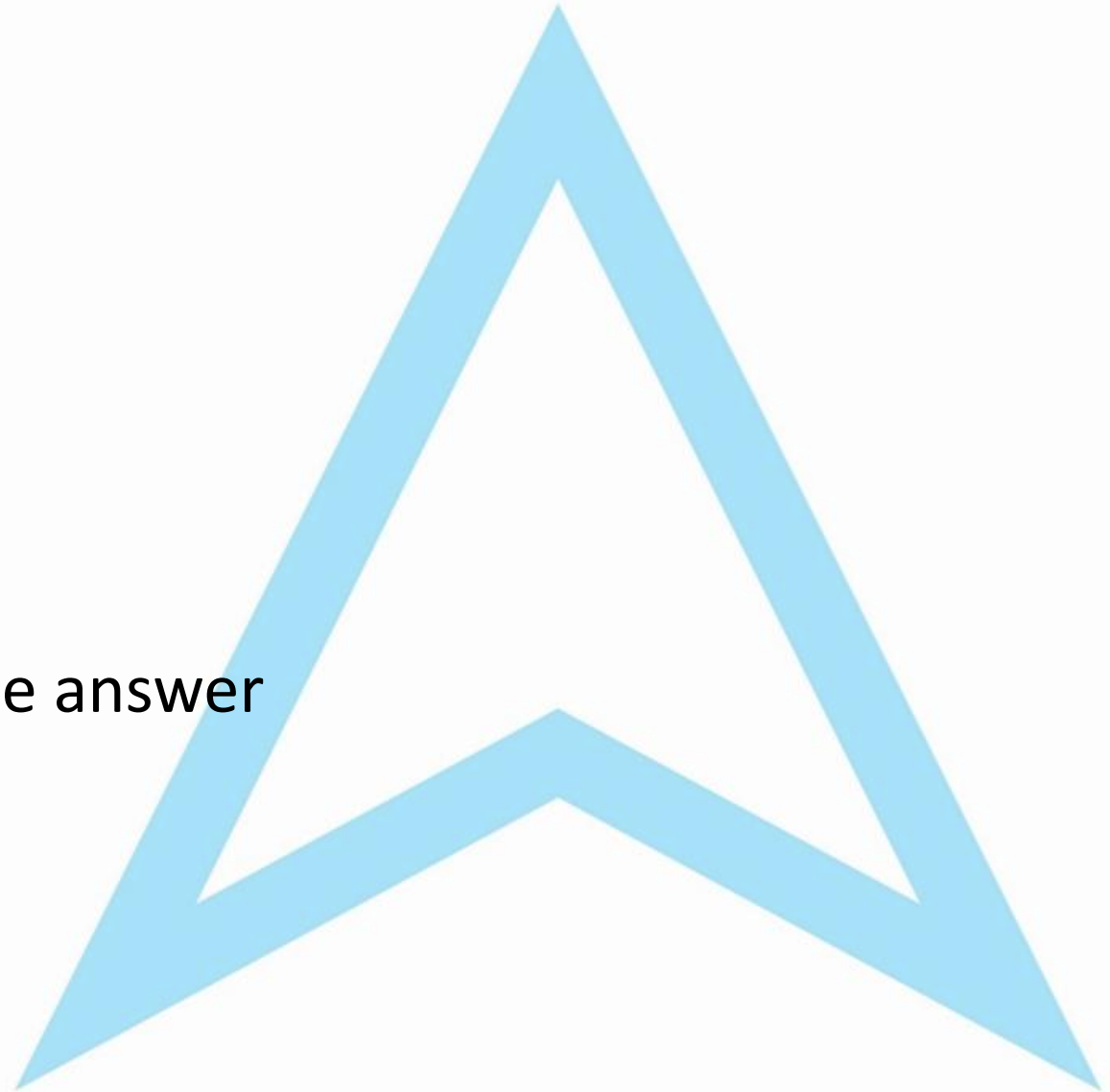
- Martian Weight
- Prompt the user for a series of earth weights (comma separated)
- Tell them how much each of those weights would be on Mars
  - mw = ew * 0.378

Creating a Command-Line Program

- Make change
- Prompt the user for the total bill and amount tendered
- Respond with the amount of change due
- BONUS: calculate the number of $20, 10, 5, 1 and quarters, dimes, nickels and pennies
- Ask if they'd like to do another

Creating a Command-Line Program

- Metric converter
- User selects one of:
  - Km to Mi
  - Cm to Inches
  - Kg to lbs
- Ask for metric value
- Convert to Imperial and present the answer
- Ask if they'd like to do another



Creating a Command-Line Program

- Interest calculator
  - Initial Principal: p
  - Interest Rate: r
  - Investment time (years): t
- Calculate balance after n years:
  - Balance = p * (1 + r)**t
- Ask if they'd like to do another