

# Introduction to Computer Science

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## Project #1 - Card Game

You will make a basic card game that fits the following description. Then you will enhance it to make it more fun!

Here's the description of the card game:

- This card game has two players playing against each other.
- Each player has their own deck of cards. Each card has a name, an attack value and a defense value.
- At the start of the game, each player draws 5 cards from the deck and adds them to their hand.
- Each round, each player chooses a card from their hand to play.
- The overall effectiveness of a card's attack is calculated by subtracting the opposing card's defense value from the card's attack value.
- The card that produces the most effective attack wins the round, earning a point for the player that played it.
- At the end of each round, players draw from the deck until they have 5 cards in their hand again.
- The first player to 8 points wins the game.

## Step 1 - UML Diagram

In the first video this week, I go through how to build a UML diagram for this project. You can use mine, or build out your own.

## Step 2 - Pseudocode

For each of the data types make a skeleton struct or class and fill in the functions with pseudocode

### Step 3 - Programming

Fill in the functions with real code

### Step 4 - Testing / Debugging

Write a main function that will test it out! If you are not able to get input using `readLine()`, make both players computer players and simulate a game.

### Step 5 - Expand the Game

Watch the video on protocols and turn the `Card` struct into a `Card` protocol. Make your own structs to represent a few different types of Cards with different effects. You can use some ideas from the video, or make your own!

### Submit:

Your final UML diagram, updated to reflect the final version of the game

Your skeleton project

Your basic version of the game (it should work!)

Your finished version of the game with your additions

A short reflection essay (1-2 paragraphs, or some bullet points) on the process. What was useful? What was challenging? What was confusing? What was fun?