CMPSC 112

Lecture 4: Object Oriented Design, Part 2

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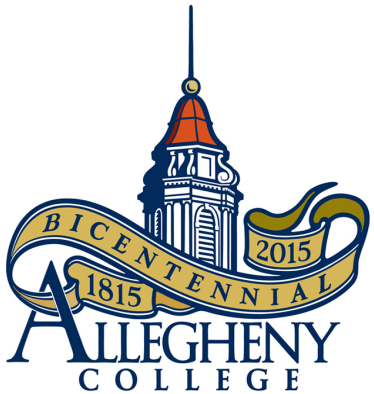
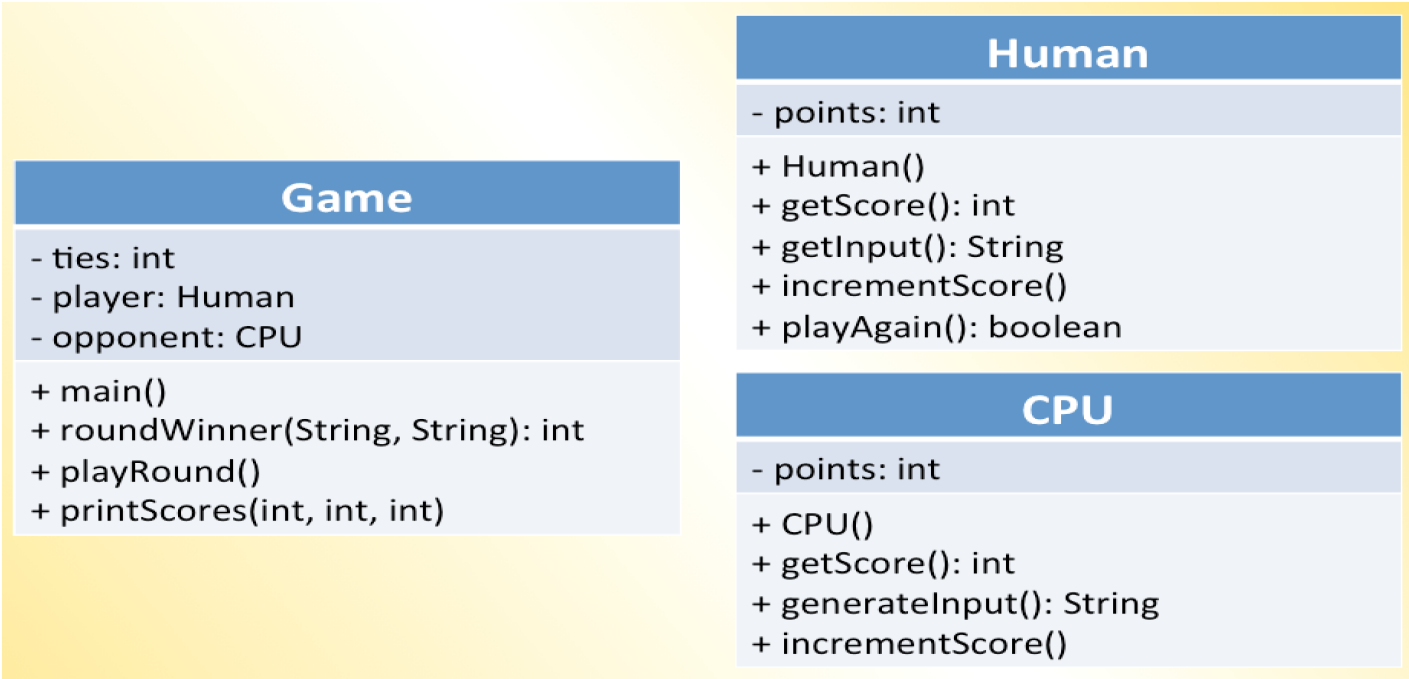


Last Time

- Robustness, Adaptability, and Reusability software goals
- What is an Object?
- Abstraction, Encapsulation, and Modularity software goals
- UML Class Diagrams

Reminder: Mastery Quiz. Stay Tuned: Technology Tea on Tuesdays at 2.00 PM (today).

RPS Classes


Game
- ties: int
- player: Human
- opponent: CPU
+ main()
+ roundWinner(String, String): int
+ playRound()
+ printScores(int, int, int)
Human
- points: int
+ Human()
+ getScore(): int
+ getInput(): String
+ incrementScore()
+ playAgain(): boolean
CPU
- points: int
+ CPU()
+ getScore(): int
+ generateInput(): String
+ incrementScore()

Additional Goals for OOPS

- Abstraction - Distill a complicated system down into fundamental parts. Specify what each operation does, and how it does it.
- Encapsulation - Different components of a software system should not reveal the internal details of their respective implementations. Data accessed through public interfaces.
- Modularity - Different components of a software system are divided into separate functional units, which later get integrated into a larger software system.

ToDo: What Else?

- Post some thoughts in the #lectures channel on Slack similar to last week. What did we do well and what did we do poorly with respect to these three additional goals?

Let us do some code!

- Convert the RPS program using OOP techniques.
- Class diagram shown in slide 03.

Reading Assignment

- GT Chapter 2.1, 2.3

Any Questions

- Reminder: REVIEW FORM