Analysis

How does your design implement the four pillars of OOP (abstraction, encapsulation, inheritance and composition, and polymorphism)?

- **Abstraction**: This is demonstrated in our design by our AbstractPlayer class and its attributes; it only has relevant attributes that help identify a player from another within the context of hockey, such as their position or jersey number. It does not include irrelevant information such as a player's favourite food or spoken languages.

- **Encapsulation**: Encapsulation is demonstrated through the use of private instance variables (e.g., _fname and _lname) and methods (_player_exists) to hide detail from the public interface. Getter methods such as get_id() are used to access those private variables from outside the class.

- **Inheritance and composition**: These are demonstrated in our AbstractPlayer base class, and the two child classes which are derived from it (PlayerForward and PlayerGoalie). Attributes that the child classes share, such as _fname and _lname, are inherited from the AbstractPlayer class; specific attributes such as _total_shots or _goals_saved are within their respective classes only.

- **Polymorphism**: This is demonstrated in the PlayerForward and PlayerGoalie classes. Both of these classes have the get_stats() and get_type() methods, but they differ depending on the class.
    - In PlayerForward, get_stats() returns a list containing values for the player's number of goals, assists and total shots. get_type() returns "Forward".
    - In PlayerGoalie, the list for get_stats() returns values for the player's number of shots against, goals against, and saves. get_type() returns "Goalie".

Why are your entity classes good abstractions (i.e., models) of the real-world entities?

- Our entity classes are good abstractions because only relevant information to model a player's profile is included. Our classes only include attributes which are important in a hockey context (e.g, shots taken by or against a player), and excludes those which are irrelevant (such as a player's SSN or school of graduation).