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// Author: Shyaan Khan Period: 4 Date:

// Description: The super class is Player, and the subclasses are PointGuard and Center,

// which are both positions of a basketball Player. The interface is Practice, which

// both a Player can do and a Musician can do.

//-----------------------------------------------------------

**public** **abstract** **class** Player {

**private** **int** number;

**private** String name;

**private** String team;

**public** Player(String name, **int** number, String team)

{

**this**.name = name;

**this**.number = number;

**this**.team = team;

}

**public** String getName()

{

**return** name;

}

**public** **int** getNumber()

{

**return** number;

}

**public** String getTeam()

{

**return** team;

}

**public** **abstract** String pass(Player a);

**public** **abstract** String rebound(Player a);

**public** **abstract** String block(Player a);

}

**public** **class** Center **extends** Player **implements** Practice{

**private** **double** reboundsPerGame;

**public** Center(String name, **int** number, String team, **double** reboundsPerGame){

**super**(name, number, team);

**this**.reboundsPerGame = reboundsPerGame;

}

**public** **double** getReboundsPerGame()

{

**return** reboundsPerGame;

}

**public** String pass(Player a)

{

String nameNewPlayer = a.getName();

**return** "The ball has been passed to "+nameNewPlayer;

}

**public** String rebound(Player a)

{

String nameNewPlayer = a.getName();

**return** a.getName()+" has got the rebound.";

}

**public** String block(Player a)

{

String nameNewPlayer = a.getName();

**return** a.getName()+" has been blocked.";

}

**public** String practice()

{

**return** getName()+" has practiced his post moves";

}

}

**public** **class** PointGuard **extends** Player **implements** Practice{

**private** **double** assistsPerGame;

**public** PointGuard(String name, **int** number ,String team, **double** assistsPerGame)

{

**super**(name, number, team);

**this**.assistsPerGame = assistsPerGame;

}

**public** **double** getAssistsPerGame()

{

**return** assistsPerGame;

}

**public** String pass(Player a)

{

String nameNewPlayer = a.getName();

**return** "The ball has been passed to "+nameNewPlayer;

}

**public** String rebound(Player a)

{

String nameNewPlayer = a.getName();

**return** a.getName()+" has got the rebound.";

}

**public** String block(Player a)

{

String nameNewPlayer = a.getName();

**return** a.getName()+" has been blocked.";

}

**public** String practice()

{

**return** getName()+" has practiced dribbling and 3 point shooting";

}

}

**public** **interface** Practice {

**public** String practice();

}

**public** **class** Musician **implements** Practice{

**private** String name;

**private** String instrument;

**public** Musician(String name, String instrument)

{

**this**.name = name;

**this**.instrument = instrument;

}

**public** String getName()

{

**return** name;

}

**public** String getInstrument()

{

**return** instrument;

}

**public** String practice()

{

**return** getName()+" has practiced playing the "+getInstrument();

}

}

**public** **class** TestClass {

**public** **static** **void** main(String [] args){

Player steve = **new** PointGuard("Steve Nash", 10, "Lakers", 8.6);

Player dwight = **new** Center("Dwight Howard", 12, "Rocekts", 12.8);

Musician beethoven = **new** Musician("Beethoven", "Piano");

System.***out***.println(steve.pass(dwight));

System.***out***.println(dwight.block(steve));

System.***out***.println(beethoven.practice());

PointGuard newSteve = (PointGuard)steve;

**double** apg = newSteve.getAssistsPerGame();

System.***out***.println(apg);

}

}

OUTPUT:

The ball has been passed to Dwight Howard

Steve Nash has been blocked.

Beethoven has practiced playing the Piano

8.6