

CSci 1113

Lab Exercise 13 (Week 14): Inheritance

This lab will deal with the sport.cpp posted on the class website:

<http://www-users.cselabs.umn.edu/classes/Spring-2020/csci1113/labs/labSports.cpp>

This lets you select a sport, then displays some information about it and ends.

Warm-up

1) Parent-child

Make a parent class for all three of these sports. You do not need to change main(), but you should ensure the variables/functions are in the most appropriate place.

Stretch

1) Grandpa

Add another layer of categorization for “timed sports” that use some sort of clock and change the relationships of the classes appropriately.

2) Volleyball

Add volleyball as an option based off the example shown below. What is the most appropriate way to do this?

Example 1 (user input is underlined):

```
What sport do you wish to see information about?
```

```
The options are: (f)ootball, (s)occer, (t)ennis or (v)olleyball?
```

```
v
```

```
Area played in: 162
```

```
Net height: 2.43
```

```
Number of players: 6
```

```
Points per score: 1
```

```
Points per set: 15
```

Workout

1) Virtual

Currently main() lets you pick which sport you want information about by making one variable within each if-statement. Use the inheritance you setup to have a single line of code using displayInformation() outside of the if-statements rather than it being copy-pasted inside all three.

Hint: you will have to use late binning/virtual along with pointers to accomplish this.

Example 1 (user input is underlined):

```
What sport do you wish to see information about?
```

```
The options are: (f)ootball, (s)occer, (t)ennis or (v)olleyball?
```

tennis

Area played in: 195
Number of matches: 3
Number of players: 1
Points per score: 1
Points per set: 6

2) Modify tennis

Add an additional question when selecting Tennis whether this is single or doubles. What are two options for doing this without changing main() from the previous part?

Example 1 (user input is underlined):

What sport do you wish to see information about?
The options are: (f)ootball, (s)occer, (t)ennis or (v)olleyball?

tennis

Singles or doubles?

singles

Area played in: 195
Number of matches: 3
Number of players: 1
Points per score: 1
Points per sets: 6

Example 2 (user input is underlined):

What sport do you wish to see information about?
The options are: (f)ootball, (s)occer, (t)ennis or (v)olleyball?

tennis

Singles or doubles?

doubles

Area played in: 260
Number of matches: 3
Number of players: 2
Points per score: 1
Points per sets: 6