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Data Structures Lab 3

Task 1:
We created the variables feet, inches, and meters to be private, so that accessing and changing information would be controlled, and therefore, we could ensure the data was always accurate and formatted correctly.
The functions are all public so that they can be used from outside the class.
Task 2:
Aside from a few syntax errors, we didn't need to change much of the header file when we wrote the member definitions.
Task 3:
While we did change some of the member function definitions, we didn't need to change the declarations aside from adding the operator overloads.

a. A description of the objectives/concepts explored in this assignment including why you think they are important to this course and a career in CS and/or Engineering.

In this lab we explored class declarations and definitions. How to create member variables and functions and how to overload operators. I think this is important because classes and a basic data type and we should be able to comfortably perform different tasks with it.

b. Why you designed the class the way you did initially, what changes you made because of each task and

what considerations you consider important when designing classes. While designing the class some things we considered were the data types of members and functions. Should Members and certain functions be private or public and what arguments should be passed to functions.

Task 4:

```
feet = 5
inches = 2.3

operation to perform (+, -, *, /, ==):
+
values used in calculation:
feet: 3
inches: 0.5

8 feet, 2.8 inches
(2.50952 meters)

do you wish to continue? (y/n)
```

+ operator test

```
feet = 2
inches = 3.2

operation to perform (+, -, *, /, ==):
-
values used in calculation:
feet: 0
inches: 6.6

1 foot, 8.6 inches
(0.52324 meters)

do you wish to continue? (y/n)
```

- operator test

```
feet = 9
inches = 2.3

operation to perform (+, -, *, /, ==):
*
values used in calculation:
feet: 1
inches: 2

(units are not accurate since division or multiplication was used)
9 feet, 4.6 inches
(2.86004 meters)

do you wish to continue? (y/n)
```

* operator test

```
feet = 5
inches = 2

operation to perform (+, -, *, /, ==):
/
values used in calculation:
feet: 1
inches: 9.3

(units are not accurate since division or multiplication was used)
0 feet, 2.9108 inches
(0.0739343 meters)

do you wish to continue? (y/n)
y

operation to perform (+, -, *, /, ==):
/
values used in calculation:
feet: 0
inches: 0

cannot divide by zero.

(units are not accurate since division or multiplication was used)
0 feet, 2.9108 inches
(0.0739343 meters)

do you wish to continue? (y/n)
```

/ operator test

```
feet = 0
inches = 23.1

operation to perform (+, -, *, /, ==):
==
values used in calculation:
feet: 1
inches: 11.1

true
1 foot, 11.1 inches
(0.58674 meters)

do you wish to continue? (y/n)
y

operation to perform (+, -, *, /, ==):
==
values used in calculation:
feet: 8
inches: 0

false
1 foot, 11.1 inches
(0.58674 meters)

do you wish to continue? (y/n)
```

== operator test