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SENG 330 - Assignment 2

- Github ————— <https://github.com/ajagdev/seng330-a2>
- Included “INSTALL.txt”

INSTALL

1. Install boost

OSX: brew install boost

Windows: Download and install from <http://www.boost.org/>

2. Run make

3. Run the resulting executable 'prototype'

./prototype

- Prototype Design Pattern - “You should have at least one base class and two derived classes from it and you should be able to create instances at run-time by prompting the user for a string for the type and the instance name. ”

```
//item base class
class GymItem {
public:
    virtual GymItem* clone() = 0;
    virtual void start_machine() = 0;
    virtual void serialize() = 0;
};
...
```

```

...
...
//Treadmill class
class Treadmill : public GymItem {
public:
    GymItem* clone() {
        return new Treadmill;
    }
    int currentSpeed = 0;
    int goalSpeed = 0;
    void start_machine() {
        std::cout << "Treadmill starting up. Hold on to your love handles\n";
        currentSpeed = 1;
        goalSpeed = 10;
    }
    void serialize(){
    }
};

//bike class
class StationaryBike : public GymItem {
public:
    GymItem* clone() {
        return new StationaryBike;
    }
    int currentSpeed = 0;
    int goalSpeed = 0;
    int seatHeight = 0;
    void start_machine() {
        std::cout << "Stationary Bike starting up. Press + to increase resistance
\n";

```

```

        currentSpeed = 1;
        goalSpeed = 10;
        seatHeight = 5;
    }
    void serialize(){
    }
};

```

- Google Protocol Buffers
- Doxygen

Image 1

Gym Prototype

The screenshot shows the 'Class List' page of a Doxygen-generated documentation for 'Gym Prototype'. The page has a navigation bar with 'Main Page', 'Related Pages', and 'Classes'. Below the navigation bar, there's a search bar and tabs for 'Class List', 'Class Index', and 'Class Hierarchy'. The main content area is titled 'Class List' and contains the text: 'Here are the classes, structs, unions and interfaces with brief descriptions:'. Below this text is a table listing four classes: 'Factory', 'GymItem', 'StationaryBike', and 'Treadmill', each with a small icon to its left. The footer of the page indicates it was generated by 'doxygen 1.8.11'.

Image 2

Gym Prototype

The screenshot shows the 'Class Index' page of a Doxygen-generated documentation for 'Gym Prototype'. The page has a navigation bar with 'Main Page', 'Related Pages', and 'Classes'. Below the navigation bar, there's a search bar and tabs for 'Class List', 'Class Index', and 'Class Hierarchy'. The main content area is titled 'Class Index' and displays a list of classes grouped by their first letter. The classes listed are 'Factory', 'GymItem', 'StationaryBike', and 'Treadmill', each with a small icon to its left. The footer of the page indicates it was generated by 'doxygen 1.8.11'.

Image 3

Gym Prototype

[Main Page](#) [Related Pages](#) [Classes](#)

[Class List](#) [Class Index](#) [Class Hierarchy](#)

Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Factory

▼ GymItem

StationaryBike

Treadmill

Generated by [doxygen](#) 1.8.11

Image 4

Gym Prototype

[Main Page](#) [Related Pages](#) [Classes](#)

[Class List](#) [Class Index](#) [Class Hierarchy](#)

StationaryBike Class Reference

Public Member Functions | List of all members

Inheritance diagram for StationaryBike:

```
graph BT; StationaryBike --> GymItem
```

Public Member Functions

GymItem * clone ()

void start_machine ()

The documentation for this class was generated from the following file:

- prototype.cpp

Generated by [doxygen](#) 1.8.11

Image 5

Gym Prototype

[Main Page](#) [Related Pages](#) [Classes](#)

[Class List](#) [Class Index](#) [Class Hierarchy](#)

GymItem Class Reference

[Public Member Functions](#) | [List of all members](#) [abstract](#)

Inheritance diagram for GymItem:

```
graph BT; StationaryBike --> GymItem; Treadmill --> GymItem
```

Public Member Functions

virtual GymItem * clone ()=0

virtual void start_machine ()=0

The documentation for this class was generated from the following file:

- prototype.cpp

Generated by [doxygen](#) 1.8.11

- Google Testing Framework ————— Missing