HOMEWORK #5:

Hierarchy of Robots

Due Date: Wednesday, March 9th, 11:59pm

For this assignment, you will submit a collection of '`*.h`' and '`*.cpp`' file pairs and a C++ program called '`robots.cpp`' containing your '`main()`' function.
Remember to put your **name** and **section** at the top of all your files.
Your program should expect all input to come from '`cin`', and all your output should be to '`cout`'.

Problem:

Famous industrialist Mom has requested Planet Express Softworks the development of a new payroll system for the multitude of robots that work for MomCorp. Robot employees come in 3 different kinds. Wrapper robots, Bender Robots, and Welder Robots.

Each package kind has a different pricing system:

- WRAPPER Robots are paid at a rate of $0.25 per hour plus a bonus of $0.05 per package wrapped.
- BENDER Robots are paid at a rate of $0.45 per hour regular time, $0.65 per hour of extra time, plus a bonus of $0.02 per bend.
- WELDER Robots are paid at a rate of $0.55 per hour regular time, $0.75 per hour of extra time, $1.00 extra per hour when handling radioactive materials, plus an extra $9.99 flat bonus.

Your job:

1. Extend the provided '`AbstractRobot`' class with **3 derived classes**, '`WrapperRobot`', '`BenderRobot`', and '`WelderRobot`'.
2. Put each class in its own '`*.h`' and '`*.cpp`' file pair, **named the same as the class**.
3. Write a program that uses such classes to read robot descriptions, output their weekly pay and tally a total and an average.
4. **Create .zip or .tar file to submit files altogether.**

Mom is the mom of all robots.

Input:

The first line of the input gives the number of robots **R**.
The first line of each robot is an integer stating the type of robot. (0 : Wrapper, 1 : Bender, 2 : Welder), followed by a string, the name of the robot. Then, according to the type of robot, their working information.

- For a WRAPPER Robot, the number of hours worked and the number of packages wrapped.
- For a BENDER Robot, the number of regular hours worked, the number of extra-time hours worked, and the number of bends performed.
- For a WELDER Robot, the number of regular hours worked, the number of extra-time hours worked, and the number of regular hours spent handling radioactive material.

Output:

For each robot, output one line containing "#*x*: ", where *x* is the robot number (starting from 0) followed by its name, it's type, and it's pay (in the format shown in the sample). After the output for all the robots is printed, print the total pay and the average pay for this payment shift.

Implementation Requirements:

- Output the robots in the same order they are read.
- Do not use any public member variables. (respect the privacy of the robots).
- The names of the robots will **not** contain spaces.
- Use a '`*.h`' and '`*.cpp`' file pair per class.
- Your submission will be compiled using '`fg++ *.cpp`' so don't submit unnecessary files.
- Use `#include <iomanip>` and use the following to print to 2 decimal places

```
cout.setf(ios_base::fixed,ios_base::floatfield);
cout.precision(2);
```

Sample:

Input	Output
4 0 Unit-01 10 20 1 Flexo 14 28 30 2 Fuzion 18 20 5 0 Scott 5 5	#0: Unit-01, Wrapper $3.50 #1: Flexo, Bender $25.10 #2: Fuzion, Welder $39.89 #3: Scott, Wrapper $1.50 TOTAL PAY = $69.99 AVERAGE PAY = $17.50