Overview: In this lab, you will work in your same (GitHub) group of three from before, but writing C++ code to experiment with inheritance in C++.

You will start with a parent Shape class, and then each of you will individually write one of three classes that inherit from the Shape class: Circle, Triangle, Rectangle.

Group Work:

1. Begin by navigating to your local git-tracked “team” directory from Lab 7 (e.g., cmsc240_s2018_lab7_gold) and create a new lab8 directory inside there.

2. For the three people in your group (each working on their own non-master branch):
   - Person #1 should create Shape.h (see course web page) and a Makefile (see Lab 7's Makefile for a template).
   - Person #2 should create Shape.cpp.
   - Person #3 should create tester.cpp.

3. To stage your work on git, navigate back to your team directory and execute git add lab8. Then commit your work.

4. Checkout the master branch, merge your working branch, and then push/pull as appropriate.

5. Again for the three people in your group (each working on their own non-master branch):
   - Person #1 should implement Circle.{h,cpp}, inheriting from Shape. In implementing the print function, include the circle's (inherited) name, and its radius.
   - Person #2 should implement Triangle.{h,cpp}, inheriting from Shape. In implementing the print function, include the triangle's (inherited) name, and its base and height.
   - Person #3 should implement Rectangle.{h,cpp}, inheriting from Shape. In implementing the print function, include the rectangle's (inherited) name, and its width and height.
   - Each person should modify the Makefile to accommodate their new class.
   - Each person should add to tester.cpp to test their new class.

6. Navigate back to your team directory, and commit your work.

7. Checkout the master branch, merge your working branch, and then push/pull as appropriate.

Individual Work: At this point, you should each have a pulled lab8 directory containing working code for Shape, Circle, Triangle, Rectangle, and tester.cpp. Now complete the following work on your own individually.

1. Add code similar to the following to tester.cpp (presuming cir, tri, and rec correspond to instances of Circle, Triangle, and Rectangle respectively in tester.cpp):
Shape* sptr = &cir;
sptr->print();
sptr = &tri;
sptr->print();
sptr = &rec;
sptr->print();

Compile, execute, and note the result of the output. In a new README.txt file (inside your lab8 directory), comment on the resulting output — what is being printed for each shape, and why.

2. Now in Shape.h, uncomment the following line:

    virtual void print();

and comment out the previous declaration of print. Compile, execute, and note the result of the output, particularly comparing to the results from the previous step. In your README.txt, comment on the resulting output — what is being printed for each shape, and why.

3. Now in Shape.h, uncomment the following line:

    virtual void print() = 0;

and comment out the previous declaration of print. (This makes Shape a virtual class.) Compile and note the result of the output. In your README.txt, comment on the result — what happens, and why.

4. Now change Shape.h back to have:

    virtual void print();

Compile and execute to ensure that the code runs correctly.

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**Submitting:** Package your lab8 directory into a gzipped tarball a la `cmsc240_lab8_neitd.tgz` and drop into the `lab8/` folder of your shared Box folder. Your lab is due by 23:59:59 on Sun 25 Mar.