

CIS 200: Project 6 – Greenfoot (40 points)

Due **MON**, Mar 28th by midnight

Reminder: Programs submitted after the due date/time will be penalized 10% for each day the project is late (not accepted after 3 days, i.e. Midnight, Thu, Mar 31st)

Reminder: ALL projects are intended to be done *individually*. Do NOT share your code with anyone. If it is not your work, don't submit it as yours! Refer to the policy within the course syllabus which states, ***"If two (or more) students are involved in ANY violation of this policy, at a minimum, ALL students involved receive a zero for the assignment and the offense is officially reported to the KSU Honor Council. The second offense results in a failing grade for the course and possible suspension from the university (this decision is made by the K-State Honor Council)."***

This project consists of *two* parts, plus an *extra credit* portion, so **partial credit will be awarded for each part you complete**. However, project must be submitted before the deadline for full credit. While partial credit is available, if one part is late, 10% (-5) per day penalty applies to the *entire* project.

We are using Greenfoot as a *tool* to learn the concepts of OOP. You are not expected to become Greenfoot experts. Likewise, the GTAs and Instructor are also not Greenfoot experts – many questions that start with *"In Greenfoot, how do I..."* will need to be answered through exploration, trial and error, and Internet research (*just like the real world!*)

Use the Greenfoot documentation and Appendix B in your text to help you with questions that arise

Before beginning, download the file **Proj6_Starter Files.zip** which contains the needed starter files for this project ("*leaves-and-wombats.zip*", "*asteroids.zip*", and "*little-crab.zip*") either using the link within the assignment directions in Canvas or directly from the *Programming Projects* folder in Canvas. You will need to extract (*un-compress*) the folder before you can access the need files.

Directions below are for the SECOND edition of the text. You may need to make slight adjustments if using the older, **FIRST edition** of the text.

****Note:** An exercise often asks a *rhetorical question*, such as *"What does this do?"* or *"What is the difference between the act and the move methods?"* You will **NOT** submit the answer for these questions, but I would suggest you jot down your answers in your textbook or on a separate piece of paper so that you will have for later reference.

Part 1: (10 pts.) *Intro to Greenfoot*

- **Read & Do all Exercises (1.1-1.15) in Chapter 1 - Getting to Know Greenfoot.** To do exercises 1.1-1.9, you will need to unzip/open the scenario "*leaves-and-wombats*". To do exercises 1.10-1.15, you will need to unzip/open the scenario "*asteroids*". Read through the *Summary* and *Concept Summary* at the end of the chapter to make sure you understand the concepts covered in the Chapter.

When finished

- Zip the entire *leaves-and wombats* **folder** that you modified to create *leaves-and-wombats.zip*
 - Zip the entire *asteroids1* **folder** that you modified to create *asteroids.zip*
 - For **Submission**, copy BOTH zip files into a folder called **Proj6**. Complete **Part 2** (and, if doing, the extra credit) before zipping the project 6 folder and submitting.
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Part 2: (30 pts.) *Little Crab Program*

Read & Do all Exercises (2.1-1.18) in Chapter 2 - *The First Program: Little Crab*. To do these exercises, you will need to unzip/open the scenario "*little-crab.zip*". Read through the *Summary* and *Concept Summary* at the end of the chapter to make sure you understand the concepts covered in the Chapter. (You can skip the "*Drill and Practice*" at the end of the Chapter, but look over Ex 2.19-2.23 and make sure you understand how you would write these method signatures)

Read & Do all Exercises (3.1-3.24) (3.25 is optional) in Chapter 3 "*Improving the Crab*." To do these exercises, you will need to open the scenario completed in **Chapter 2** (*little crab*). Read through *Section 3.10* (Code Completion), the *Summary* and *Concept Summary* at the end of the chapter to make sure you understand the concepts covered in the Chapter. (You can skip the "*Drill and Practice*" at the end of the Chapter, but look over Ex 3.26-3.30 and make sure you understand how you would look up info in the API documentation)

Read & Do all Exercises (4.1-4.26) (4.27 is optional) in Chapter 4 "*Finishing the Crab Game*." To do these exercises, you will need to open the scenario completed in **Chapter 3** (*little crab*). Read through the *Summary* and *Concept Summary* at the end of the chapter to make sure you understand the concepts covered in the Chapter. (You can skip the "*Drill and Practice*" at the end of the Chapter)

When finished

- Zip the entire *little-crab* **folder** that you modified to create *little-crab.zip*

Lastly, for Part 2, create an **executable version (.jar)** of **Part 2** (*Little Crab*) by reading and following the instructions in the "*Interlude 1 Sharing Your Scenarios*" Chapter - **Sections 1.1 and 1.4 only** – *Export to Application*. Simply choose **Scenario-Share** (not *export*) then chose *Application*. (You can also choose the 'Share' button in the top, right-corner if it is present.)

****Advanced Warning: -5 pts if the .jar file is not included with your submission****

- For **Submission**, add BOTH the *little-crab.zip* file AND the *.jar* file to your **Proj6** folder.

Extra Credit: (+5 pts.)

– To complete Extra Credit, you will need to unzip/open the scenario "*EC_piano*" available in Canvas in the *Programming Projects* folder within *Proj6_Starter Files.zip*.

- 1) Carefully read and complete **Chapter 6 Sections 6.1-6.6 Exercises 1-25** (*this is Chapter 5 in the first edition of the textbook*). Your scenario should automatically add 8 black keys to your world, with each key playing a different note and controlled by different keys.
- 2) Use the sample code below to **add a method** to your piano scenario to display a message to the user telling them to click on RUN to execute the program along with a message telling them the range of keys used to control the *white* keys and the range of keys used to control the *black* keys. (You will need to determine where this method should go and how to add this extra info).

```
public void showMessage()  
{  
    GreenfootImage bg = getBackground();  
    bg.setColor(Color.WHITE);  
    bg.drawString("Message goes here...", 25, 320);  
}  
// end showMessage()
```

Note: To use the *Color* class, you will need to *import java.awt.Color;*

- For **Submission**, Zip the entire *piano* **folder** that you modified to create *EC_piano.zip* then create an **executable .jar** file. Copy **BOTH** files to your Proj6 folder.

Submission – Read and follow these instructions carefully or you may lose points or get a zero!

Proj6 folder should now contain 4 files (*leaves-and-wombats.zip*, *asteroids.zip*, *little-crab.zip* and *little-crab.jar*) plus 2 additional files, if doing the extra credit (*EC_piano.zip*, *EC_piano.jar*). Right-click on the Proj6 folder and select “Send To->Compressed (zipped) folder”. This will create the file Proj6.zip.

Log-in to Canvas and upload your **Proj6.zip** file. **Only a .zip file will be accepted for this assignment in Canvas. Put your name and Project 6 in the comments box.**

Important: It is the **student’s responsibility** to verify that the **correct** file is **properly** submitted. If you don’t properly submit the **correct** file, it will not be accepted after the 3-day late period.

GRADING: Take the time to make sure the correct **FOUR** files (**SIX** if doing EC) are placed in the **Proj6** folder before zipping and submitting!

Requirement	Points
Part 1 (10 pts. possible)	
<i>Leaves-and-wombats</i> scenario correctly created / runs properly	5
<i>Asteroids</i> scenario correctly created / runs properly	5
Part 2 (30 pts. possible) Little Crab scenario correctly created / runs properly as follows:	
Executable .jar file included/properly executes without having to load Greenfoot	5
Automatically adds Crabs, Lobsters, and Worms to the World (Section 4.7)	4
Keyboard Control for the Crab (Section 3.6)	3
Crab properly eats the Worm and plays a sound (Section 3.3 / Ex 3.24)	4
Lobsters randomly move around and turn when they hit the edge (Section 3.5)	3
When Lobster catches a Crab, the game ends (Ex 3.22)	3
Crabs are animated (Section 4.9)	3
<i>Fanfare.wav</i> plays when 8 worms are eaten (section 4.15)	3
Proper Submission with full name & project # in Comment box, single folder containing three ZIP files and one JAR file. Correct Filename (Proj6.java)	2
Extra Credit (+5)	
Executable .jar file included/properly executes without having to load Greenfoot	2
<i>Piano</i> scenario correctly created / runs properly	2
Additional METHOD added to display a message to user how to play the digital piano	1
Minus Late Penalty (10% per day)	
Total	40