The Final Graphics Project

The Project Is Open-Ended

This final lab assignment has no required output. It has no required procedures or functions. This project tests your creativity and your programming skills. It is required that you do a **GRAPHICS** project, which really is more interesting than the plain text-style program. In this lab-assignment-document the requirements are indicated, but you will see that the project is completely open-ended. You select the type of project and the type of Python programming tools to complete the project.

Required Knowledge

The final lab assignment is not meant to be strictly a demonstration of acquired knowledge. This major program should be an excellent tool to attain additional programming knowledge and skills. It is not required that you do research in areas that were not provided during the year, but you are encouraged to do research if you desire. For instance, you were not shown how to put music in your programs, but each year several students figure that out on their own.

Your Grade Is Relative

Unlike the vast majority of your lab assignments, this project does not have specific *Point Versions*. Instead, your project will be graded by how well it compares to everyone else's project. Your teacher will look at several factors when comparing the projects. Some of these are Color, Detail, Complexity, Originality, Animation, Sound, Mouse Interactivity, Key Interactivity and Game Playability. All of these will improve your score. If your project has any issues, glitches, or is unfinished… that will count against you. To earn a grade of 100 (or possibly up to 110) your project needs to be one of the best.

Working Alone Or As A Team

This graphics project is intended to be completed by a team of 2 members. You may pick your own team members. In some cases, a team of 3 may be approved, but a team of 4 will NEVER be approved. Keep the following in mind:

1) If you choose to work alone, your project will still be compared against other projects that were done with 2 team members.

2) If you are in an approved group of 3, your project will need to be considerably better to earn the same grade as a team of 2. If someone in your group is not pulling his/her own weight, he/she is lowering your team's score just by being on your team.

3) If 4 people want to be on a team, they simply need to become 2 groups of 2. End of story.

4) This assignment is meant to provide you an opportunity to work as a team. The ability to select good team members and work in a group are very important life skills. If your best friend is a bit on the lazy side, you should not allow him/her on your team.

5) Once teams are chosen, you are stuck with them. Your teacher does not want to hear any complaints about your team members.

Team Member Selection

You MUST select team members from your own class and period. You may not have team members from a different class – even if it is the same course – even if it is the same teacher. When this was allowed in the past the result was always the same. The team members never saw each other and they failed miserably.

NOTE: It is vital that ALL team members store ALL files. Frequently teams are paralyzed on a day when a team member is ill and it turns out that the absent team member is the only team member who stored all the files.

Importing Graphics Images

You are **NOT** allowed to import **ANY** images for this project… **PERIOD!**

The graphics images that are displayed on the screen need to be created by calling the various graphics subroutines from the **Graphics** library.

Traditional Graphics or Turtle Graphics

This project is requires the use of *Traditional Graphics* commands from the **Graphics** library.
You may **NOT** do this project using *Turtle Graphics* or *ASCII Text Graphics*.

Continuing Earlier Projects

You have already done some *Open Ended* projects in this class like the *Christmas Project* and the *Modular Graphics Project*.
This *Final Project* is **NOT** *Christmas Project II* or *Modular Graphics Project II.*
It is **NOT** a continuation of these or any other graphics assignment.
This is a new original assignment. To put it simply:

You are **NOT** allowed to continue an earlier assignment for this project… **PERIOD!**

Academic Dishonesty

Large projects of this nature may tempt students to take improper short cuts or use improper resources. It may be easy to find a project made by another student, especially with another computer science teacher and turn this project in as your own. Such an approach is hardly clever. You learn nothing. You know it is wrong and you should realize that all projects are looked at by all the computer science teachers. In other words, your project will look very suspicious if it resembles another project.

Students think that they are clever by searching the Internet and using whole programs or partial programs and then turn such programs in as their own. The assumption is that teachers cannot possibly know all the programs that are available. This is totally true, but a slight detail is forgotten. You are expected to do research and learn new material. If your clever program includes new features, you may be in an awkward position to explain these features. Are you prepared to handle the following question? *George and Kathy, I am impressed that you managed to incorporate such advanced topics as multi-threading and exception-handling in your project. Can you explain these topics to me so that I am assured that you did learn this new material?*

Evidence of any type of dishonesty on this project will result in a grade of ZERØ and appropriate disciplinary action for the involved students based on the school's honor code.

Grading Factors

It was mentioned earlier that projects are graded on a relative scale. However, there are definite factors that change your grade tremendously both negatively and positively. Please read this very carefully, because it is quite possible to earn a **zero** on this project, which will impact your grade very heavily.

What is most important is **YOUR PROGRAM MUST EXECUTE COMPLETELY WITHOUT ANY ERRORS**!

During every small stage in developing your program you need to execute the program and then check for correct output. Give each stage of your program a number, such as **FinalProject1.py**, **FinalProject2.py**, etc. This number approach can protect you in the event the final stage does not work. It is so much better to turn in a functional, non-finished project than a program that theoretically is finished, but does not compile.

Any program, regardless of length or complexity, which does not execute or only executes partially and then crashes with an error will result in a grade of ZERO.

It is wise to start with a modest program. First make sure your small program works correctly and then move on and add enhancements. Make sure that each enhancement receives a new project number. One of the biggest problems with graphics projects is that students do not comprehend that large programs are very time-consuming. You do not have any time to waste. Every year there are students who procrastinate and do not start right away. They tend to fail miserably, and in many cases their grade is so low that they wind up failing the last grading period.

Factors that will impact your grade in a positive manner include: using *mouse & key interaction*; using *animation*; demonstrating good use of *color* with a lot of *detail*; being *original*; having *sound* or *music*, or even *creating a game*. Usually creating a game is only done in courses like *AP® Computer Science-A* or *Advanced Graphics*.

Program Documentation

Your teacher requires proper documentation, but more importantly you will need documentation. When a program gets large, you may forget why you did what you did. Using good self-commenting identifiers and well-placed comments is absolutely vital to debugging program problems and implementing any type of program enhancement.

Project Approval

At the conclusion of this project document is the **Project Approval Form**. Your first step in starting the project is to fill out the form and obtain approval to start the project. No projects will be approved if all or any part of the project contains:

- any kind of inappropriate language.
- any type of racial, demeaning or prejudicial language.
- any form of drug, alcohol or cigarette use.
- any act of violence or any display of blood.
- any implied violence by the display of weapons or slogans.
- any form of nudity, even if you regard such display as art.
- anything else considered inappropriate by your teacher.

Any program which includes any features that are inappropriate will not be graded regardless of the computer science skills demonstrated by the program.

Getting Teacher Help

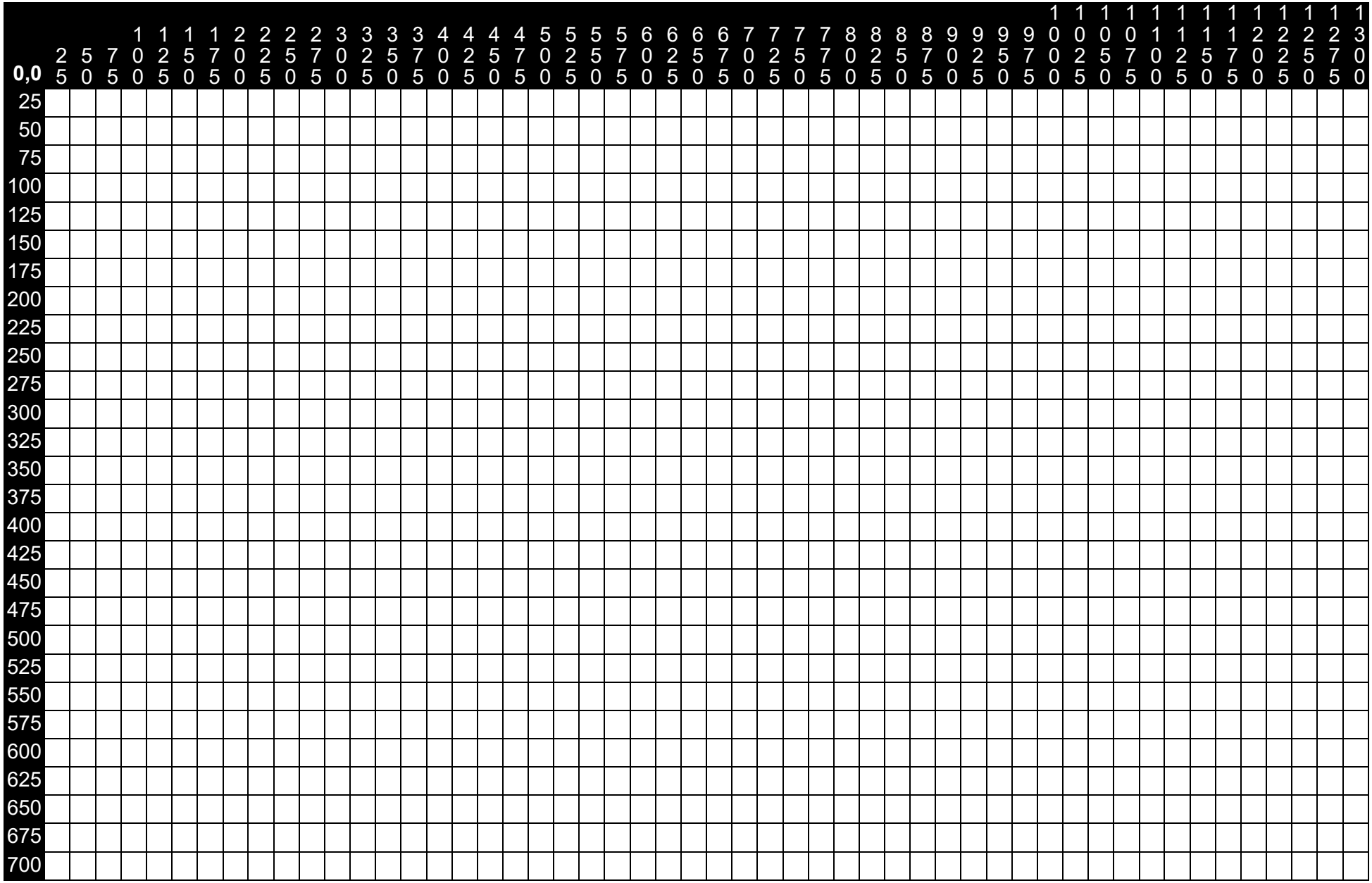
For the entire year you were able to get help on program assignments. This help was available during scheduled program lab practice and also during tutorial time. For the final assignment there is practically NO TEACHER HELP. If you have a syntax error that states that a closing parenthesis is missing in line 37, you should go to line 37 and see if a ")" is missing. If you program executes, but it does not do what you want it to do, then you are simply doing it wrong and you should try something else. There will be ABSOLUTELY NO HELP on "*how do I do this…*" or "*how do I do that…*" The ONLY HELP that your teacher MIGHT give you is with a syntax error message that does not make sense. Also, it is great if you are trying something beyond what was taught, like trying to put music in your program, but do keep in mind that you are COMPLETELY ON YOUR OWN with that.

Required Files To Turn In

This file is in a folder called **Lab18B-FinalProject**. You need to rename this folder. Replace the "**Lab18B**" part with the first and last name of everyone in your group. For example, if your name is *John Smith* and your partner's name is *Tom Jones* then you would rename the folder to **JohnSmithTomJones-FinalProject**. When you are finished, make sure you turn in the entire folder containing all Python as well as any other support files (like sound files) that may be necessary to execute your program.

Remember…
Any project that is simply finished in one or two days will not be good enough and will receive a very low score due to lack of effort!

Graphics Sheet - 1300 x 700



Computer Science Graphics Project Approval Form

Fill out this page on your computer and then bring a printed signed copy to your teacher.

<table>
<tr><td>Project Title</td><td colspan="4"></td></tr>
<tr><td rowspan="3">Team members
(NOTE: 3 member teams require approval from your teacher.
ALSO: All team members must be in the same class with the same teacher.)</td><td colspan="4">Name:</td></tr>
<tr><td colspan="4">Name:</td></tr>
<tr><td colspan="4">Name:</td></tr>
<tr><td>Teacher & Period</td><td colspan="4"></td></tr>
<tr><td>Project description</td><td colspan="4"></td></tr>
<tr><td rowspan="3">Special features you plan to include</td><td colspan="4">Check Any Features That Apply</td></tr>
<tr><td></td><td>Mouse / Key Interaction</td><td></td><td>Sound</td></tr>
<tr><td></td><td>Animation</td><td></td><td>Game capabilities</td></tr>
<tr><td>Signed Agreement and Understanding to be signed by each team member</td><td colspan="4">I/We understand and agree to the following:
This project will not contain any inappropriate displays, as described in this project document.
No grade can be assigned to any project that cannot be executed.
All necessary files must be placed in one folder and must be checked in that folder for correctness.
Any project that is a copy of another project or program or a substantial copy will become a zero.
This project is meant to be an exercise in student initiative and will not receive any teacher help.

Signed:_____ Date:_____
Signed:_____ Date:_____
Signed:_____ Date:_____</td></tr>
</table>