**Software Engineering Challenge**

**Requirements**

Describe the challenge or problem, what does the program need to do

* Needs to make a city skyline with flashing lights on the windows and at least one animated object

What classes/objects do you think you need?

* A vehicle class, building class, sun class or circle class for both sun and moon

How much time do you think you will you need to complete the project?

* Not entirely sure, maybe 3 or 4 days

**Research**

What knowledge or skills will you need to build this program

* A general understanding of what each method of each class does and how they each use one another

What examples are online or in other graphical programs (games, apps etc. . .)

* Wallpapers or YouTube videos

If so, what can you learn from them?

* How to design the objects of each class

Do you foresee any problems or constraints, describe

* One thing to keep in mind would be the order in which I draw each object so that the proper things are in the background or foreground

Have you created a similar programs or applets? Are there similar programs in the book or other resources?

* This is similar to the fractal lab where we used the Graphics class, used a viewer, and the paintComponent method just to name a few

If so, what elements of that project can you bring to this project?

Do you have the resources you need to create the program?

* Yes

Do you need to learn any new knowledge or skill(s) to create the program?

* No

**Design**

Draw/create a basic graphic of the applet you plan to build - attach the drawing

(paint, word, photo shop) not every objet (draw one example although there may be several in the final program) needs to be in the basic graphic

Include a task list--what will you need to do and in what order

1. Make sky class so the time of day changes over time
2. Make rectangle class to make ground, water, and buildings
3. Make a window class so it can animate and flash
4. Make a circle class to make the sun and also make semi-circles for the arch on the bridge
5. Make a cloud class to move horizontally
6. Draw lines for the bridge
7. (Not sure) Potentially make a car class, yet it would be hard to make it go up and down the ramp on the bridge

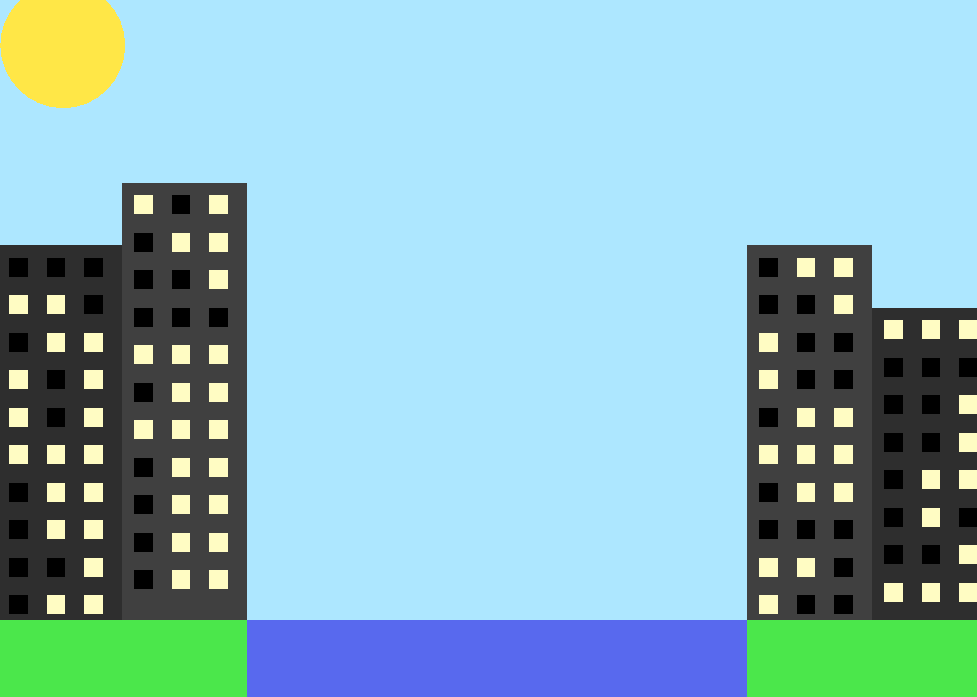
Estimate the amount of time you will need to complete the project

* After considering the task list, probably around 4 days, maybe more

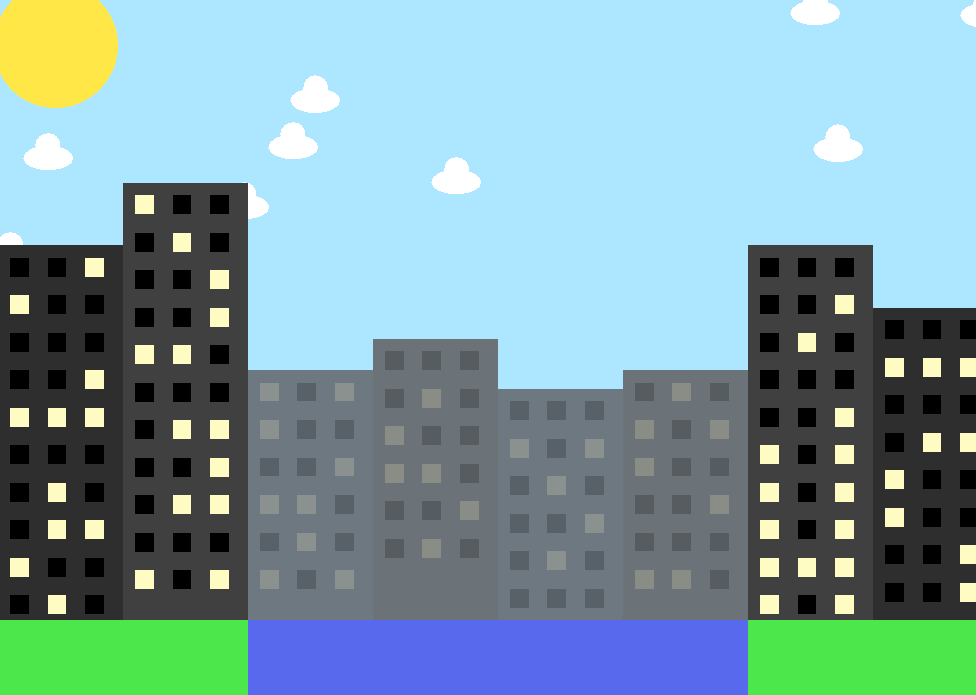
**Construction – included in summary doc**

Document your construction progress with date and progress made (build a chart/table in word or excel), also, include at least three screen shots of your applet (beginning, middle, and end)

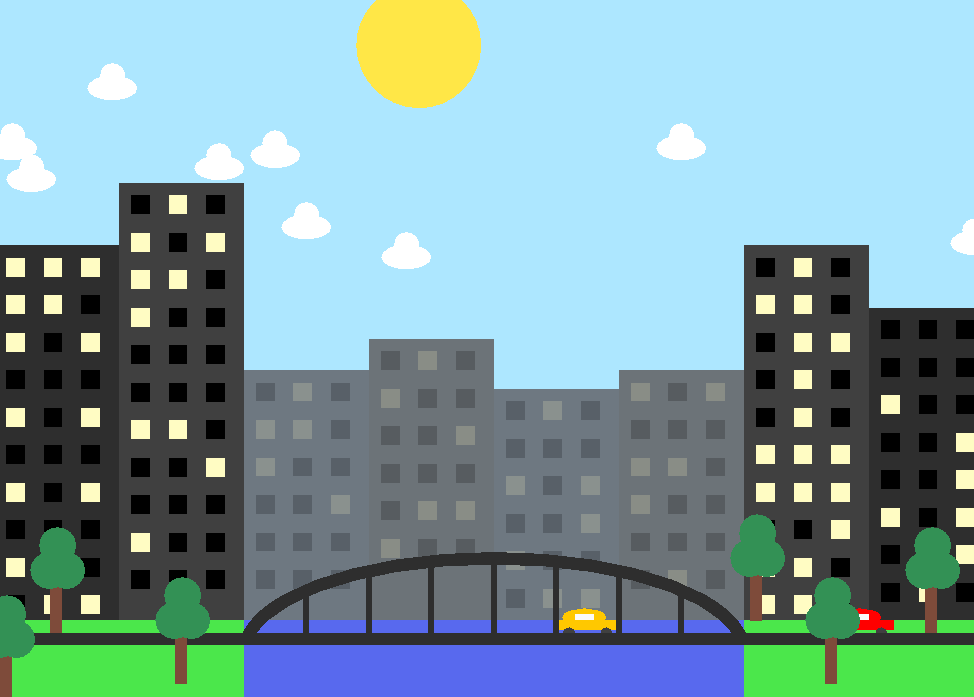
**BEGINNING**

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**MIDDLE**



**FINAL**



**Testing/Results/Delivery—summary doc not required to start project**

Preliminary testing

Does your program meet the needs of the initial challenge or problem? How do you know?

* Yes, I have flashing lights as well as several moving objects (cars, clouds, and sun), which exceeds the requirements.

Are any changes or modifications needed, why or why not? Document any changes.

* I don’t think I need any modifications. If I wanted to, I could try to add a day and night cycle just for fun but I’m not sure how I would go about doing that.

Summarize the project - what worked, what didn’t work, note your successes and/or failures.

* I think pretty much everything I had in mind worked. I was able to get everything done that I had in my initial concept as well as even more.

Looking back, would you have done anything differently, why or why not

* I don’t think I would do anything differently. I went about this project at a pretty good pace, and it was a good enough challenge where there were definitely some parts where I really had to think and solve problems, but it wasn’t overwhelmingly difficult.

Software Summary Document

Daily Progress Report

|  |  |
| --- | --- |
| Date | Description |
| May 19, 2021 | I want to get the ground, water, and buildings done |
| May 25,  2021 | Today I want to get the windows done and animated, and I can also start the clouds |
| May 25,  2021 | Today I want to animate the windows, make some more buildings and maybe the lake, and if I have time, I should make a circle class for the sun  I ended up getting the windows completely done, I made some more buildings, added the lake, and I made a single cloud and got it to move around |
| June 1,  2021 | Today, I plan to complete all my clouds by making an array of clouds. I also want to make a circle class and/or a sun class, because I want to animate a sun to move slowly across the screen. I also think I should add some smaller buildings in the background over the lake so it looks like they’re far away.  Today I got everything done that I planned on getting done. I also started a class for the bridge, but I haven’t done much since I need to figure out how to rotate some rectangles in order to complete the bridge and also get some cars on there if I have time for it. |
| June 3,  2021 | I really want to add my bridge and some cars; all I need to do is learn to rotate anything I want to draw and then I know exactly what to do. I also want to add some trees as a finishing touch.  I finished everything that I needed to. |