# Criteria D Evaluation:

Criteria D Reflection:

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### Success of Solution

Now that my 2048 game is complete I will reflect my success and failures. Here is a chart to specify where they were met:

|  |  |  |  |
| --- | --- | --- | --- |
| Specifications: | Failed: | Met: | Exceeds: |
| 1. There must be a grid game and/or puzzle |  |  | X |
| 1. There should be pieces for the players to move |  |  | X |
| 1. There should be comments for the code to be easily adaptable |  |  | X |
| 1. No animation |  |  | X |
| 1. Should be a winning condition and/or score |  |  | X |
| 1. There should be thinking and/or problem solving to complete the puzzle |  |  | X |
| 1. There must be a theme to make the problem more engaging (eg. League of Legends, Spongebob). |  |  | X |
| 1. Should be instructions |  |  | X |
| 1. Should follow Good UI design principles / Error Free |  |  | X |
| 1. There should be color and pictures |  |  | X |
| 1. Pictures should be sourced at the top of code for copywriter purposes |  |  | X |
| 1. Multiple screens |  |  | X |
| 1. Widget should use set dimension so that there are a correct size if needed |  |  | X |
| 1. A new widget should be used (menu, checkbox, radio button, and progress bar) |  |  | X |
| 1. 500-2000 lines of code |  |  | X |

## Positives:

My project exceeded in terms of aesthetical appeal as multiple efforts were made accordingly. The opening menu screen consisted of a flamboyant Gif image containing the number 2048. After finding the Gif I was immediately taken aback, and thus I decided my entire colour scheme (specification 10) would be based of those colours. As a result, the image nicely blends in with the background of my game. Furthermore, all the JButtons in my game had the same background as the gif. I had the option of using special themed tiles, which users could unlock after passing certain checkpoints, from which I chose the 3 most popular and good-looking themes that I could find. Furthermore, I had various pictures throughout my other screen that looked great and were informative, ex: The instructions screen had a good looking picture that aided the user to understand how the game works, but at the same time it looked good. Last but not the least, all my widgets were arranged nicely so that in turn my game looks better. This all contributed to my game having good UI design (specification 9).

The biggest advantage for me finishing my game early, was that I a plethora of time to test it. This testing consisted of my family, friends, classmates, and myself playing the game numerous times until errors became obvious. From there I had more than enough time to fix the errors, and bring back the game for some more testing and fixing in a vigorous process. This all had a culminated effect in making my game error free (specification 9).

Another advantage for finishing my game early was that I had more than enough time to add extra features like (a combo box, sound, and special code (do-while loops) (specification 10)). Apart from those miniscule additions I also added another huge aspect to the game of passing checkpoints and unlocking themes (specification 7). Although this was a hard process that had a lot to do with the score/ highest tile of the user along with the winning condition (specification 5), I was happy that I did it because it added a unique aspect to my game.

One final advantage to finishing my game early was that I had a lot of time to condense my code (specification 15) and make it efficient. It took a while but I realised that I could allow users to change between themes and types of images (gifs/jpgs) fairly easily by simply saving the themes as distinct chars followed by numbers (tile number), and adding variables before and after my redraw method.

## Negatives:

The biggest withdrawal to my game was that I was unable to add keyboard input (specification 14). Although I tried a lot to do it and spent many hours on it, I was unable to find the source code I required to implement it in my game. As with keyboard input my game would be a lot more professional and I wouldn’t have to use tacky gif buttons close to the New Game button. I cannot stress how many times I clicked the new Game button halfway through and I had to restart. But I was happy that I was at least able to add a “Are you sure” pop up box in my game for that specific incident.

Although my game was fairly simple and didn’t really need any time by time instructions, there were some moments where some of my Testers were confused. As I believe I have played the game around 60 times, out of which I was only able to win once. That’s because along with Luck, there is a consistent strategy that leads to victory. And so if I had a strategy screen, then maybe that section of the UI could have improved (specification 9).

My game was able to be error free for a big reason. I had a huge amount of limitations on the user. One of which would be that there isn’t a play on option for the user once they get 2048 (specification 5). This mainly happened because I didn’t have enough time, but if given the chance I would really like to add that feature.

### Approaches towards learning

Through the means of this game I have really built my **“research skills”** because I really spent a lot of time adding new features in my game, some of which worked out, while others did not (specification 14). The one that did not work out is the infamous keyboard input in which I spent at least 5 hours unsuccessfully researching through at least 9 websites. I believe this is because it is not commonly used in Swing based Applets. But on the other hand, one piece of research that nicely worked out for me was sound in which I had 2 pieces of music (an instrumental that plays during the game, and the Pac man theme song that plays on the main screen) and a sound effect (when the user clicks a theme button, an arrow sound is heard). Another piece of successful research was different 2048 tile themes (all of which I footnoted in my Criteria B and sourced at the top of my code) so that I did not have to spend hours creating each individual piece. This was not really all independent, it involved some note taking and involvement in class as well, as it is where I got the idea of pop-up boxes from.

Through the means of this game I have built my **“social skills”** as well because I worked attentively with a myriad of different people like Riken and Sid actively throughout the research and trial/error process by seeing if and how sound can work with .wav files in our games. Furthermore through back and forth feedback with Aanand and Romanch I was able to obtain the idea of having multiple themes (hence I named one of my themes Romanch theme). Thus it is pretty obvious how active communication did nothing but improve my overall game. Also to understand the specifications for the game and simple necessities I really needed to be an Active Listener in class.

### Impacts on Target Audience

My client was Bill Ritchie, the CEO of Thinkfun. He wanted to have grid based - problem solving games in his new Math Fair for MYP students from Grades 6-8, so that they can get interested in the Math and/or Computer Science, as there has been a decrease in the amount of students enrolling into these fields.

The 2048 game exhibits a perfect situation for problem solving because the game is fairly difficult and thus requires a huge amount of problem solving strategizing and patterning through the means of a repeated process. These are the exact characteristics required in all Mathematical and/or Computer Science tasks. Furthermore the game follows along with the principles of grit and Code.org, while maintaining the aspect of repetition and practice which according to grit leads to interest and greatness.

The Global Context of **“personal and cultural”** applies here. It includes “Inquiry into the ways in which we discover and express ideas… enjoy our creativity; our appreciation of the aesthetic.” I believe that I made it fairly clear in my positives section about the extent I went to to make my game aesthetically appealing (specification 7, specification 10). But to sum up, it all happened with the start of a random idea of using one of my gif tiles as my main screen picture. Then it went to mixing and matching my colour schemes to see which one looks the best, and it finally ended with various shades of purple complementing each other with white text and some additional themed tiles. This all didn’t randomly come to me as Steven Johnson said, this Slow Hunch took time and its creativity was based off of a lot of input from my peers.

The Key Concept of **“communication”** also applied to this entire project. IB says that “Communication is the exchange or transfer of signals, facts, ideas and symbols”. As previously mentioned, a lot of communication went out through the process of this project. It ranged from being an Active Listener in class to understand the project necessities. And thorough research, I understood what Bill Ritchie wanted, and active conversations with my peers made problem solving a lot easier, like while we searched for additional components to our games like music. Furthermore good UI principles were implemented into the game (like the previously mentioned Visually Appealing and Widget Management (specification 10)) while understanding possible errors the user could make. As communication entails, this all helped me drive innovation and analyse the best for my target audience.