Eason Yu Hao Chang

CSE 198 Winter 2017 CSVR

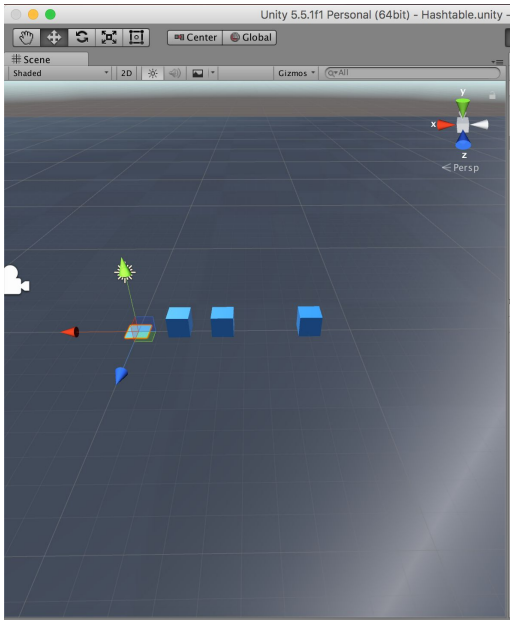
End of Quarter Report

This is my first quarter contributing to this brand new project CSVR. Our goal is to use virtual reality to represent basic computer science concepts or data structures to beginners who are unfamiliar with them.

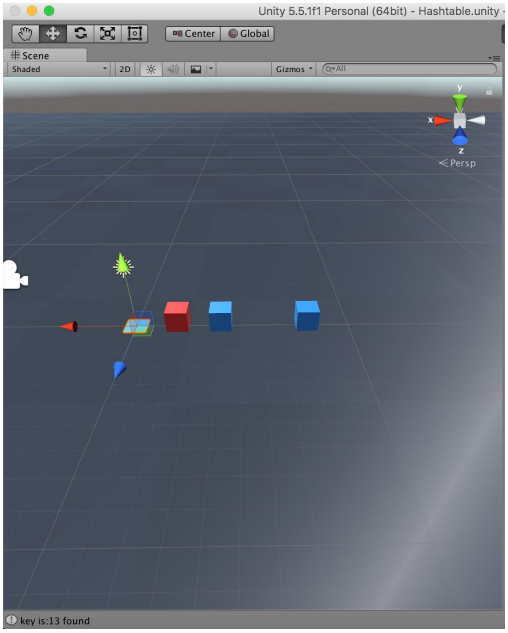
First I would like to highlight our accomplishments this quarter. We have successfully implemented many data structures visualizers and made them interactive. My personal contribution to the team was that I was in charge of the back end coding as well as the basic visualization. I have implemented a stack using List in C# with functions such as insert, remove, and lookup. On top of that, preserve characteristics such as First-In-First-Out. It can be seen that when we insert, it adds a block to the scene, when we remove it pushes a block to the side, and when we lookup, it highlights and changes the color of the block that's on top of the stack. I have also implemented a hash table using linear probing collision strategy with its basic functions, hash function, insert, lookup, and remove.

Some challenges I have faced was definitely time management on the project. Although it does not seem too time consuming to implement. I am fairly new to unity, C#, and VR development. Therefore, the learning curve was undeniable. On the side, I have played around with Unity elements such as implementing the tutorial Roll A Ball Game. Even on top of that, I also tried to pick up more knowledge of unity by making a 3D PacMan Game using the base model created with the Roll A Ball Game. It is also hard to allocate time to do this project on the side on top of school work. Thankfully, I have really helpful and knowledgeable team members who's always willing to help me out.

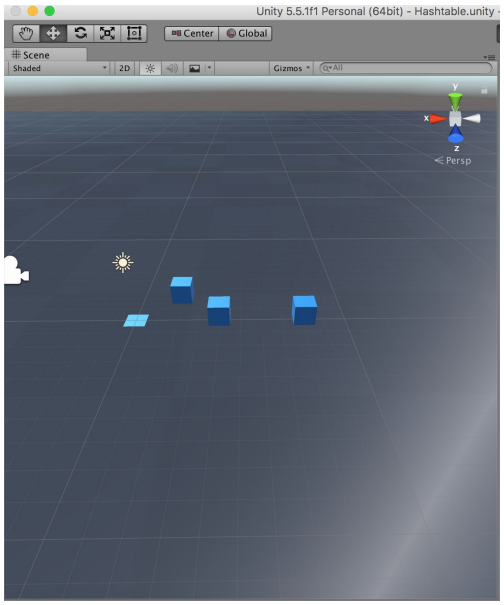
Finally, there are some setbacks this quarter. Since I am fairly new to this development environment. Therefore debugging my code was a relatively difficult task. It sometimes takes days just to find a bug in my code and wonder what's not working. I remember there is this once, I spent days wondering why I am not inserting in the correct position of my hashtable. The code looks bugless to me. It wasn't until after a week of struggle that I realized I passed in the instantiation of a prefab object during the function call, so by default it creates an object on the position of the object, in which the script is attached to. A main take away from working on this project for the past quarter for me is to never give up. A lot of time, I looked at a piece of code I wrote and feel hopeless, and often I forget to take a step back and go back to the most fundamental debugging skills.



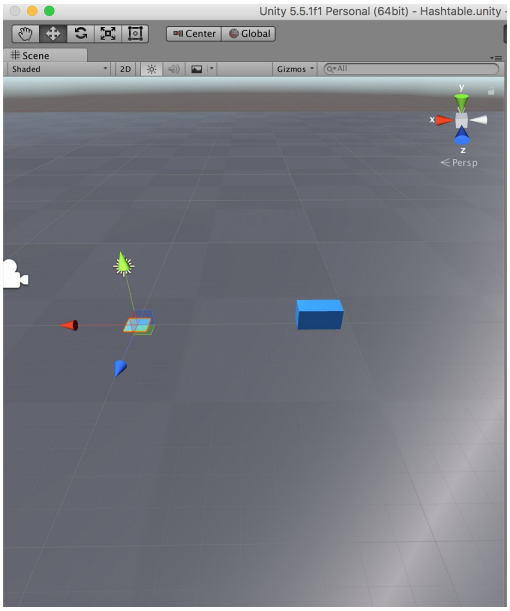
HashTable size 11 after inserting 30, 15, 13



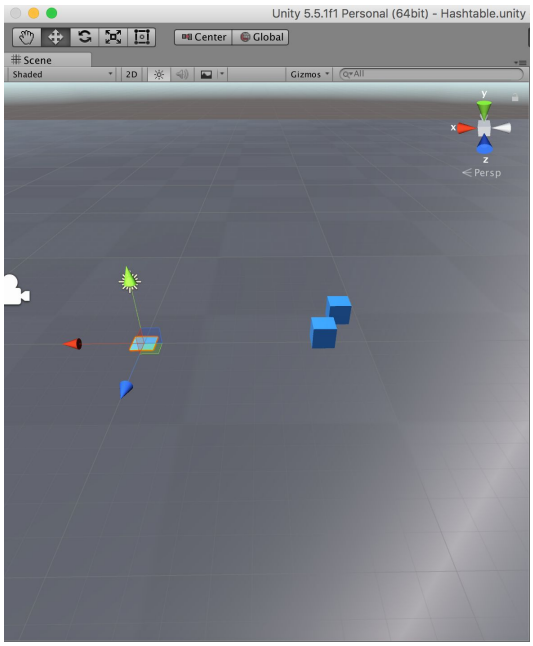
Finding 13 in the hashTable



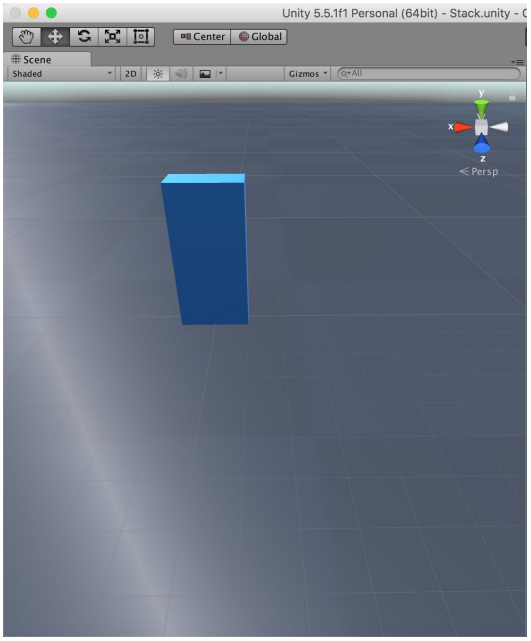
Removing 13 from the hashTable



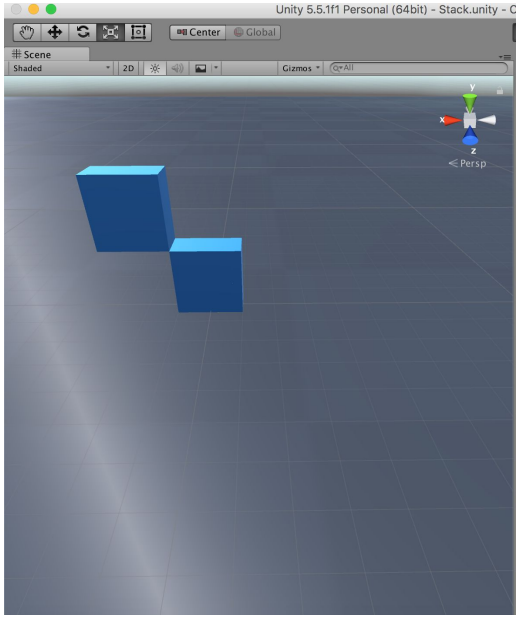
Size:11. Inserting 30, and 19 to check linear probing collision insert.



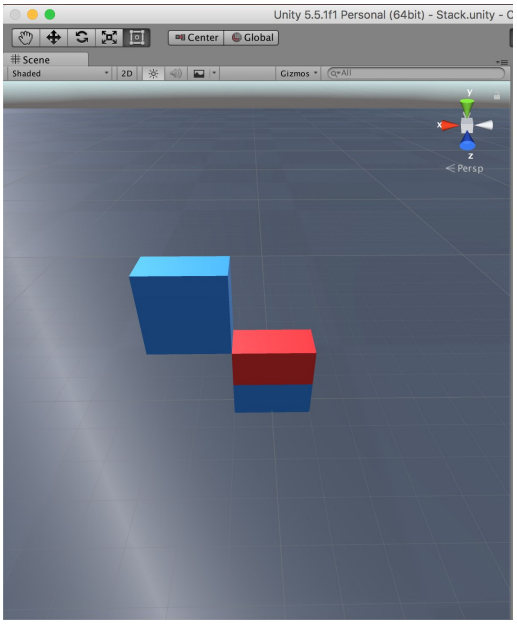
Size:11. Inserting 30, and 19, then remove 19 to chec linear probing delete



Pushing 4 times to the stack



Pushing 4 times then pop twice from stack



Peaking or calling the top function highlights the top of the stack.