Design patterns represent the best practices used by experienced object-oriented software developers. Design patterns are solutions to general problems that software developers faced during software development. These solutions were obtained by trial and error by numerous software developers over quite a substantial period of time. Object oriented Programming itself a challenging task for me since I encountered it first time in my life so as Unit test. It’s the first time for me with java too. I choose Restaurant Menu as my project where I use four design pattern such as

1. Decorator pattern
2. Command pattern
3. Iterator pattern
4. State pattern

**Challenges I faced during the project**

1. Right selection of the Design pattern for the project.
2. Integrating different Design Pattern is a real challenge .
3. Assembling all the item’s together.
4. Faced some difficulty in integrating the state design pattern for POS system.
5. Unit test is a little difficult for me as I never used it before.

**Solution for the challenges I faced**

1. First I learned about the all design pattern in detail from the book and then analyze which design pattern is best fit for my project.

2.Tested each design separately and tried to understand the in-depth specifics of each design patterns

3. After tested each design pattern separately I merge all of them together and solved the problem which arises.

4. Asked my friends about unit test and peers also helped me a lot for testing the J unit test and in last after practicing I finally did it.

**What I learned from Design Pattern and from this course**

Design patterns are solutions to recurring problems, benefitting from standardized solutions, based upon the same architectural ideas. They arguably originated from traditional architecture, Design patterns are common approaches to solving particular classes of programming problems. I Learned about algorithms, and some efficient use of of data structures which is coupled with important Computer Science concepts, such as scalability. I also learned a lot about J unit test I was completely novice in that thing before but now I can easily find out the flaws in the design pattern by the help of it. Overall it’s a great experience to learn this subject. I am sure its gonna help me in future.