Task 2:

‘The Design of Design’ is a book written by F. P. Brooks and published in 2010. Brooks begins with two quotes that set-up the author question of design. One of them is from F. Bacon book which includes that we could learn a lot if we take lessons from a major and try to use them in another. Brooks wonders if it was so, we can learn a lot about design by sharing ideas with designers from another fields. From Oxford’s definition of the verb design, Brooks recognizes that the principles of this definition are to plan in the mind for later execution. Then he mentions Dorothy Sayers thought about the creative process and compares her view in building software to his view that are published in an earlier paper of him. Sayers includes the following three aspects: 1-the Idea: the formulation of conceptual constructs and he called it *essence* 2-the Energy: Implementation in real media and he called it *accident.* 3-the Interaction: Interactivity with users in real time but he didn’t have this step. He agreed with Rachael Luck of the University of Reading who talk about “The Design Concept” that means what characteristics of the object being designed has and what the designers want to fulfill. Thus, Brooks argues by yes about the value in creating a design concept for a system. Brooks mentions many type of design: system design, artistic design, routine design, adaptive design, and original design. This book emphases on original and system design.

Later in the book, Brooks presents “The Rational Model”. The main idea is that the model of design process is an organized model of an organized process has the following sequence of stages: we have **Goal** of the design as a primary goal, **Desiderata** which is the secondary goals, **Utility Function** that increase the quality of the design and raise the number of primary and secondary goals that will be satisfied, **Constraints** that some of them are simple and some are terrifying, the people and budgets **Resources**, and the **Decision Tree** that has nodes represent a tentative designs. The possible alternatives for each node could expand to infinity.

Some of the problems I recognized from my experience:

1. Last year in a project course, when I and the group I worked with were in the design phase. We lost a lot of time when we were trying to complete the design tree from the beginning and it caused problems with the lack of time when we were choosing each node among multiple choices leads us to different paths. We thought first that the nodes are a design decision and not a tentative complete design where the reality is the opposite and the decision tree will be discovered under the work process.
2. We Don’t Really Know the Goal When We Start. It was another problem we faced under that course. Some of the secondly goals we set in the beginning has been changed or deleted after we started the implementation because the lack of experience and the knowledge of some features in JavaFX. They were very fancy features for the program but were hard to us to implement them. So, it’s hard to define the goal from the beginning and I think the constant iteration could be a solution for this problem.