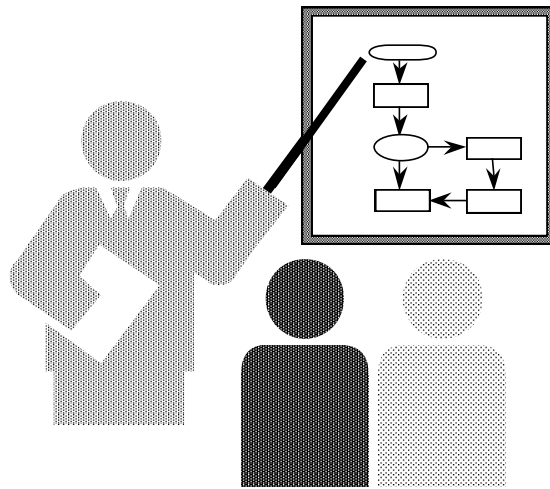


TTT PROJECT PLAN



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Table of Content

1. Organization.....	3
1.1 Organization Structure.....	3
1.2 Work responsibility.....	3
2. Project Charter	4
2.1 Scope.....	4
2.2 Objectives	4
2.3 Constraints	4
2.4 Assumptions.....	5
3. Project Plan	5
3.1 Model description	5
3.2 High level architecture.....	5
3.3 Risk Management	6
3.4 Work Task Analysis with WBS method.....	6
3.5 Critical Path	8
3.6 Master Project Schedule	9
4. References.....	9

List of Figures

Figure 1. Organization Structure.....	3
Figure 2. High level architecture of TIC-TAC-TOE project	6
Figure 3. Work Task Analysis with WBS method	7
Figure 4. Pert chart with critical path.....	8
Figure 5. Gantt Chart	9

List of Tables

Table 1. Milestone and Deadline.....	4
Table 2. Types of risks.....	6

1. Organization

1.1 Organization Structure

Figure below shows the organization structure of our team for the Tic-Tac-Toe project. It highlights the role of each team member and the task that each team member will perform throughout the development of the project.

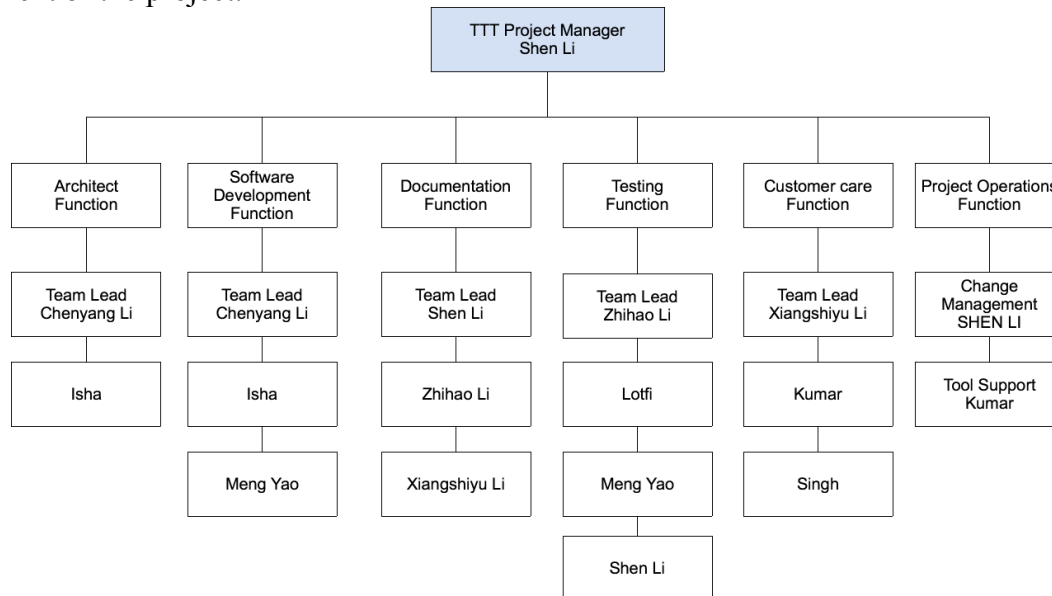


Figure 1. Organization Structure

1.2 Work responsibility

- **Architect:** A software expert who makes high-level design choices and dictates technical standards, including software coding standards, tools, and platforms. It is responsible for articulating the architectural vision, conceptualizing and experimenting with alternative architectural approaches, creating models and component and interface specification documents, and validating the architecture against requirements and assumptions.
- **Software development:** The process of computer programming, documenting, testing, and bug fixing involved in creating and maintaining applications and frameworks involved in a software release life cycle and resulting in a software product.
- **Documentation:** Documentation is written text or illustration that accompanies computer software. It either explains how it operates or how to use it. And it may mean different things to people in different roles. It includes Requirements, Architecture, Technical, End user and Marketing.
- **Testing:** Testing is an investigation conducted to provide stakeholders with information about the quality of the product or service under test. Software testing can also provide an objective, independent view of the software to allow the business to appreciate and understand the risks of software implementation. Test techniques include the process of executing a program or application with the intent of finding software bugs (errors or other defects).

- **Customer care:** Customer care is a crucial element of business success. Every contact your customers have with your business is an opportunity for you to improve your reputation with them and increase the likelihood of further sales.
- **Project operations:** The act of protecting the services. It includes availability management, Capability Management, Budget Management, Change Management, technique support, etc.

2. Project Charter

2.1 Scope

The scope of the project, which is divided into 3 deliverables, is to generate a 3*3 grid Tic-Tac-Toe game. It allows user to input an 'X' or 'O' and the player wins if he/she succeeds in placing 3 marks in horizontal, vertical, or diagonal direction. The game is to be developed for an android platform and for the desktop platform. In this game, we can expand the size of the board to 15×15, even 20×20, and we need to connect 5 pieces to form a line and to win the game that is similar to Gobang. The theory and rule of Gobang is almost as same as Tic-Tac- Toe. However, Gobang will be more interesting than Tic-Tac- Toe because it is more challenging and there will be less ties than Tic-Tac-Toe.

2.2 Objectives

The objective of this report is to identify and describe the scope, goal, constraints and assumptions of a Tic-Tac-Toe game. It will act as a formal document that manages and controls the project execution. It shows the project complexity and can serve as a purpose for communication among the team members.

2.3 Constraints

The project will have the following constraints:

- Lack of Android programming expertise required us to have a prior training and then start developing.
- System is designed in a single language, English. There is no option for selection of different language.
- Each deliverable is to be submitted in about a week, so we need to keep a rigid schedule.
- Milestones and hard deadlines

SN	Deliverable	Deadline	Milestone
1	Project Plan	Friday May 6 at 6 pm	-
2	Requirements Document	Friday May 13 at 6 pm	-
3	Release of PC version	Friday May 20 at 6 pm	✓
4	Release of Mobile version	Friday May 27 at 6 pm	✓
5	Release of AI version	Friday June 3 at 6 pm	✓

Table 1. Milestone and Deadline

2.4 Assumptions

- Deliverable 1 is the stand alone Java application on desktop in which the game is based on the mouse click operation and deliverable 2 provides a Java application in android in which the game is based on finger touch operation while deliverable 3 will be the computer version of the game.
- Regardless of the platform, in general, when running the game, the interface should first appear with the binary choice: single-player game or 2-player game.
- Then the game will provide following options to the users:
 1. Choose the difficulty level: easy or hard (only for single player game)
 2. Choose which user goes first in 2 player game.
 3. Choose whether to turn on the music or not.
 4. Start a new game.
 5. Show the scores for a player with name displayed.
- The system should show a message when a player wins and cease the game.
- It should also show some message when all the 9 grids are filled and no one is winning and give the user an option to restart the game.
- When a player tries to fill in a space which is already filled, the game should show some message indicating that the operation is invalid and nothing will be updated.
- Once a player gives an input 'X', the next input from other player or the computer has to be 'O'

3. Project Plan

3.1 Model description

Overall our project will be based on adaptive waterfall model, where each phase begins after the completion of the previous phase. Going back to the previous phase in our project will be costly in terms of time because we have strict time constraints. However, the project will be adaptive enough to cope with the minor changes required. For the research, development and testing, our project will follow iterative agile approach as the project requires rapid delivery and the requirements evolve regularly through team collaboration. Based on these requirements the project will then evolve and will be developed.

3.2 High level architecture

The figure below shows the high-level architecture of the system which consists of 5 main modules. Each module is equally important for the system to run correctly. As seen from the figure below, the system will be developed for two platforms: mobile and desktop.

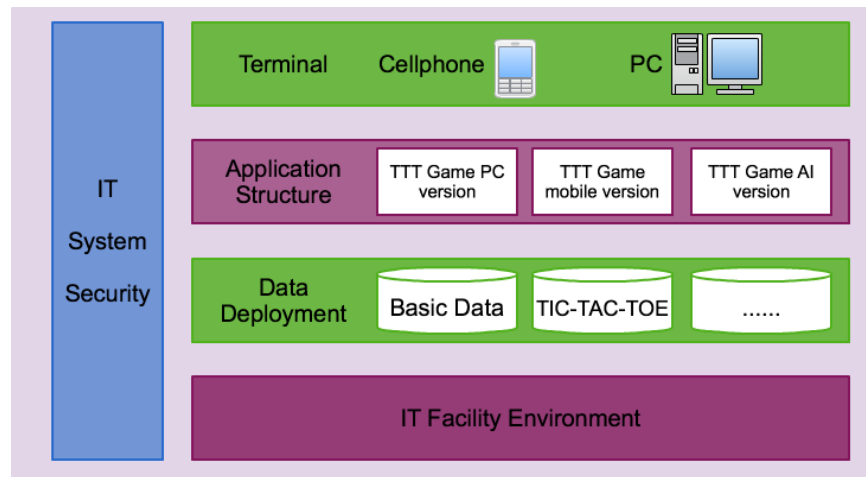


Figure 2. High level architecture of TIC-TAC-TOE project

3.3 Risk Management

The table below depicts the risks that are likely to occur in the course of project. Along with the risk we propose the measure that we plan to take in order to avoid that risk.

Risk code-name	Risk Strategy	Risk counter measures
R1. Error-prone work mode due to people in multi-position	Mitigation	Every morning, team meet for half an hour to communicate the progress and concerns. Besides, weekly meeting is conducted that last for approximately 2 hours.
R2. Lack of Android technology	Mitigation	Provide enough study resource including books and e-learning. Find an android expert for Q&A from the team.

Table 2. Types of risks

3.4 Work Task Analysis with WBS method

The Work Tasks is analyzed with the method of work breakdown structure and is depicted in the figure below.

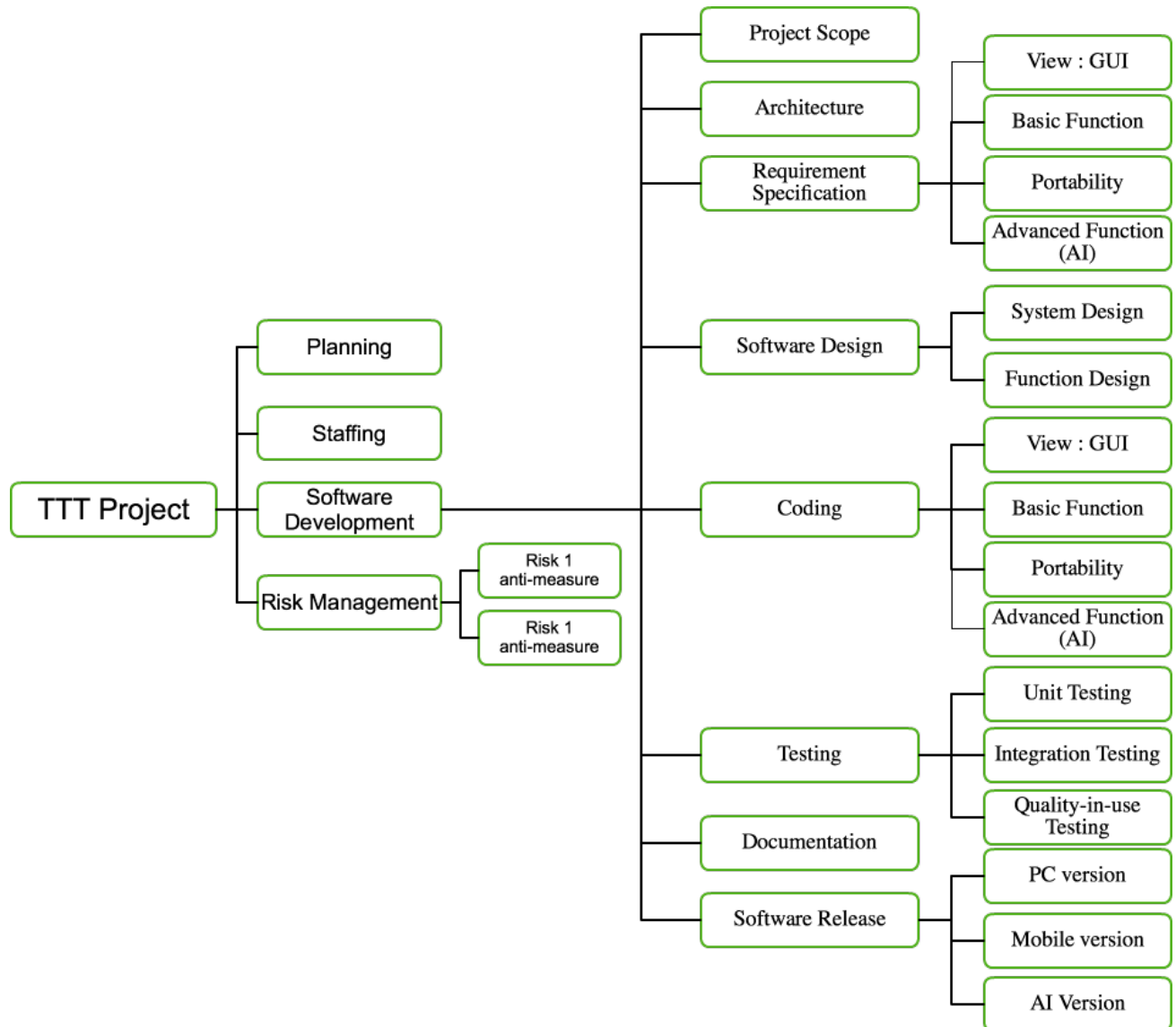


Figure 3. Work Task Analysis with WBS method

3.5 Critical Path

The figure below is the Pert Chart that depicts the project task and the relationship between each task. It also shows the critical path which is -

The critical path: T1->T2->T3->T4->T5->T6->T7->T8->T11->T14->T15->T16-> T17->T18->T21->T24->T25->T26->T27->T28->T31->T34->T35

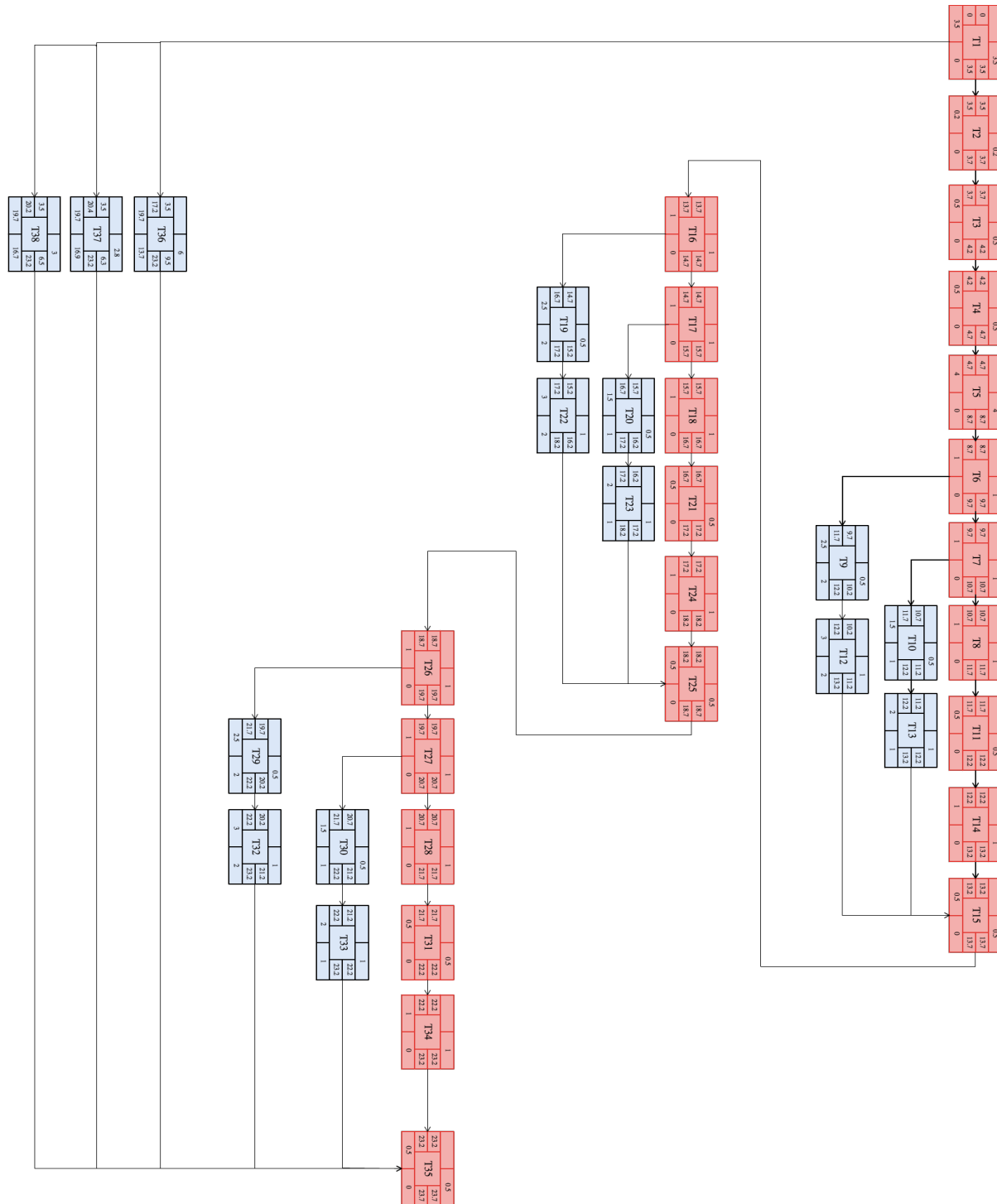


Figure 4. Pert chart with critical path

3.6 Master Project Schedule

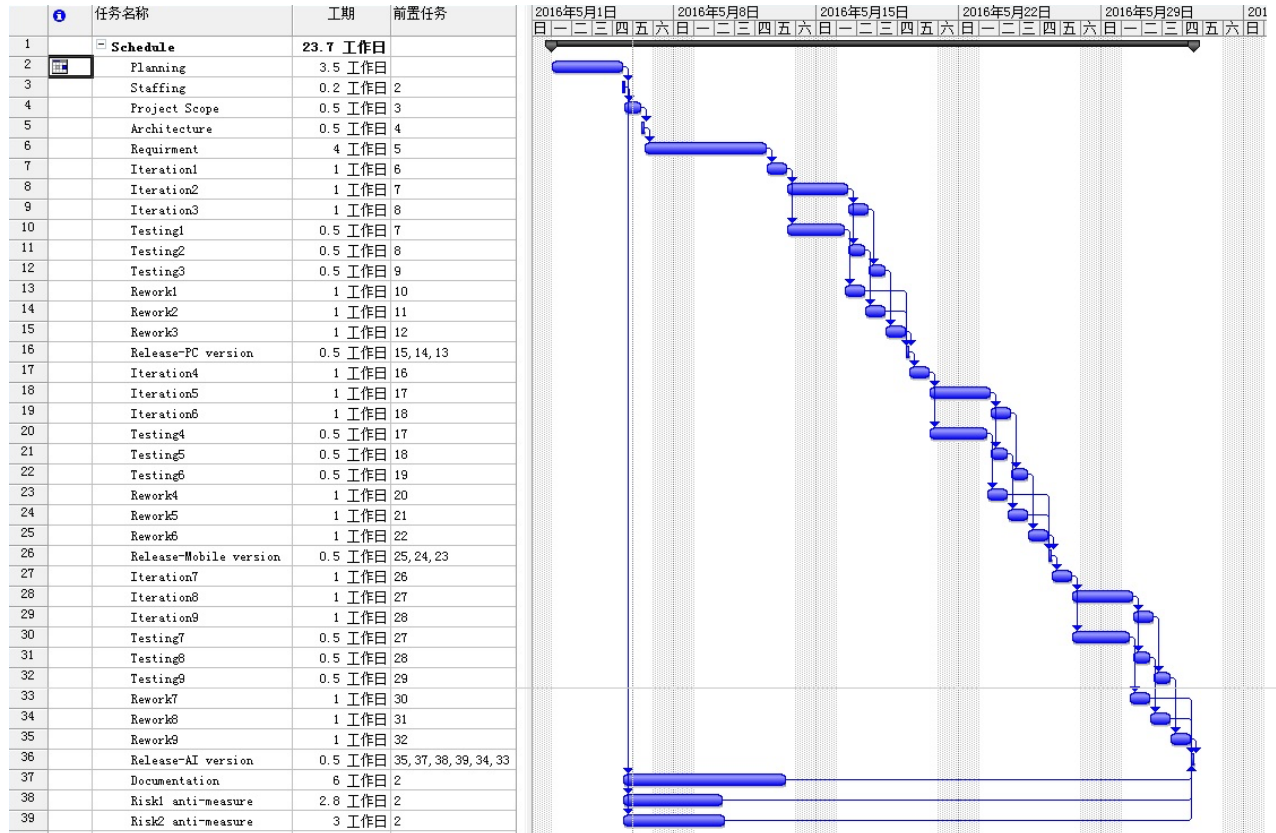


Figure 5. Gantt Chart

4. References

- Appendix1 Task Effort Estimation
- Appendix2 Pert Chart of Critical Path
- Appendix3 Roughly Requirement Analysis
- SOEN 6011, Nicolangelo Piccirilli, Software Engineering Process, Tic-Tac-Toe project description, Summer 2016, Online, Avalibale at:
https://moodle.concordia.ca/moodle/pluginfile.php/2231462/mod_resource/content/1/SOEN6011_Summer-Assignment1.pdf
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