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# ASSIGNMENT 1

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Advanced Software Engineering



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### # Assignment 1 statement

A factory produces kids toys. The process of production depending on **getting a proposal** and **developing a prototype** and **finally produce the toys** and **getting feedback** from the client. A **top designer do the proposed prototype**. that usually **reviewed** by a product manager.

The business of the factory needs to be automated and also the amount of sales and feedback related to toys needs **analysis** and Business analytics.

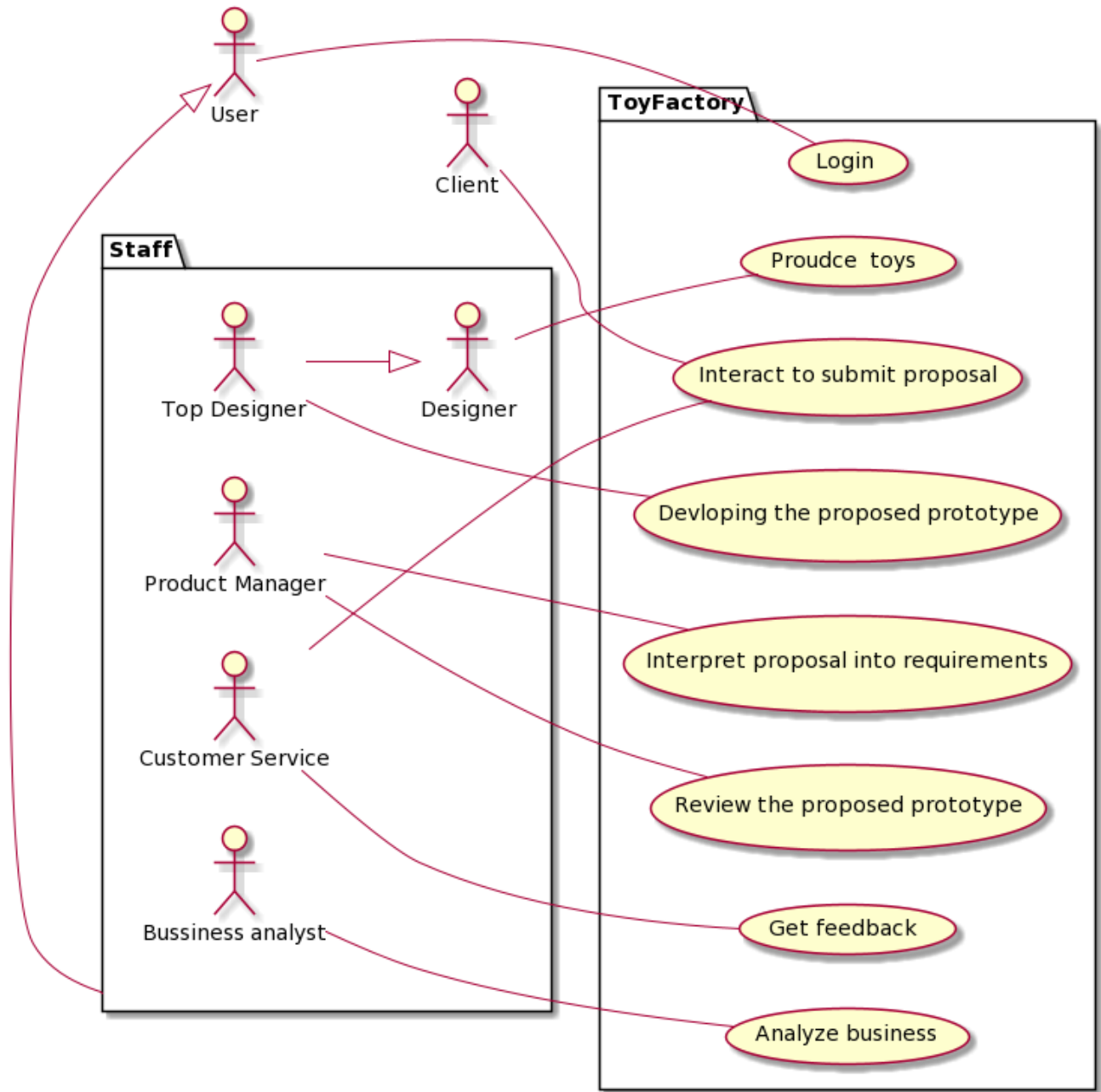
the toy factory has:

1. Number of toy designers.
2. Product managers.
3. Customer service who interacts with client to **propose toys** and **get feedback**.

### # Assumptions

- 1- Customer service acts as a virtual actor in the system (the client himself is not in the software system of the toy factory, so the customer service updates the client's state regularly).
- 2- The toy factory has an internal software system to let all the "Staff" actors interact with each other.
- 3- The system doesn't accept any user without login credentials.
- 4- The client submits a proposed design to customer service of the desired toy.
- 5- Customer service inputs the proposal on the system of the toy factory.
- 6- Product manager interprets the proposal of the clients to system requirements.
- 7- At the review meeting, the customer service fills a sheet with edit/complaints of the client. Later, Customer service submits this sheet to the system.
- 8- Any actor inside the "Staff" category is considered a user in the factory's system.
- 9- The top designer proposes a prototype and submits it to the product manager for review. Once approved by the product manager, it is sent to the client for approval. After the client approves it, it is sent to the factory designers to implement it and track mass production degree of compliance to the main prototype.
- 10- Business analyst perform all business analytics needed for the mass production of toys.
- 11- When the product manager reviews the prototype design, he can put comments on some sections and annotations on the design. (User story 6)
- 12- When the client provide comments on the prototype, the customer service add annotations and comments on the prototype design on the system. (User story 7)
- 13- The business analyst uses complex machine learning algorithms to detect the expected revenue of the available projects. (User story 9)
- 14- The system can use voice recognition to complete the login process for its users. (User story 13)

## # Use case diagram



## # Use case description

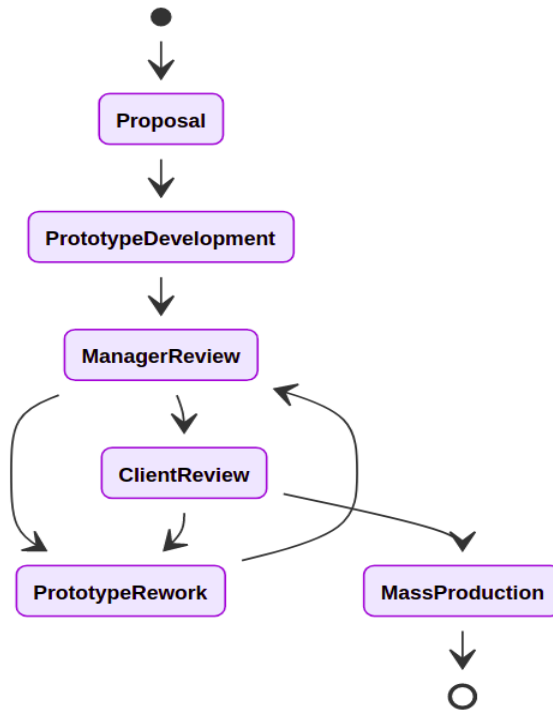
For the use case: **Review the proposed prototype:**

<b>Use case</b>	<b>Review the proposed prototype</b>
<b>Actor</b>	<b>Customer service</b>
<b>Trigger</b>	<b>A toy prototype is manufactured and waiting for client's feedback</b>
<b>Pre-condition</b>	<b>A meeting is held between customer service and the client</b>
<b>Main success scenario</b>	<ol style="list-style-type: none"><li>1. The client (CL) receives the manufactured toy prototype.</li><li>2. Customer service (CS) schedules a meeting with the client and updates factory's system (SYS) with meeting date.</li><li>3. CL analyses the prototype and compares it to the proposed one.</li><li>4. CS fills a sheet with the client's (edits/complaints) when the client has changes and submits it to the SYS.</li><li>5. CL totally accepts the proposed prototype when there are no changes.</li><li>6. CS writes nothing in the (edits/complaints) sheet</li><li>7. CL signs for mass production.</li><li>8. CS submits the sheet to the factory's SYS</li><li>9. The SYS saves the sheet and changes the state of the project to "waiting for mass production".</li></ol>
<b>Post-conditions</b>	<b>The prototype is approved, and the mass production process is going on.</b>
<b>Extensions</b>	<ol style="list-style-type: none"><li>3a. The client demands edits to be made to such prototype.</li><li>3b. The client totally refuses the proposed prototype.<ol style="list-style-type: none"><li>3b1. Redesign negotiations are setup between the client and product manager.</li></ol></li><li>4a. The CS fills client's edits section in the sheet and submits it to the project page on the SYS.<ol style="list-style-type: none"><li>4a1. The SYS updates the project's state to (Prototype Rework)</li><li>4a2 The PM gets notification with the edits from the SYS.</li><li>4a3. The product manager discusses the time needed for such edits with the top designer.</li><li>4a4. The CS informs the client with the time needed for such edit.<ol style="list-style-type: none"><li>4a4a1. The client accepts.<ol style="list-style-type: none"><li>4a4a1a1. Edits are made.</li><li>4a4a1a2. CS discusses the new prototype with the client.</li></ol></li><li>4a4a2. The client refuses the proposed time.<ol style="list-style-type: none"><li>4a4a2a1. The prototype is refused.</li></ol></li></ol></li></ol></li></ol>

For the use case: **Review the proposed Prototype:**

<b>Use case</b>	<b>Review the Proposed Prototype</b>
<b>Actor</b>	<b>Product Manager</b>
<b>Trigger</b>	<b>The top designer finished the prototype design and submits it to the dashboard</b>
<b>Precondition</b>	<b>The product manager is logged in</b>
<b>Main success scenario</b>	<ol style="list-style-type: none"><li>1 The product manager (PM) opens the pending projects (waiting for prototype review state) page</li><li>2 The system lists all pending designs to be reviewed (waiting for prototype review state)</li><li>3 The PM selects a project from the list of projects.</li><li>4 The system displays the project page that contains:<ol style="list-style-type: none"><li>4.1 The list of designs and the designer comments.</li><li>4.2 The client description of the toy.</li><li>4.3 The client info (contacts, history)</li><li>4.4 The project timeline.</li></ol></li><li>5 The PM reads the project description and submits an acceptance prototype review that contains:<ol style="list-style-type: none"><li>5.1 Rating out of 5.</li><li>5.2 Comments on the prototype.</li></ol></li><li>6 The System saves the review.</li><li>7 The system updates the state of the project to (waiting for client review).</li><li>8 The system appends the accepted prototype to last of (waiting for client review) list.</li></ol>
<b>Post-conditions</b>	<b>The design is accepted</b>
<b>Extensions</b>	<ol style="list-style-type: none"><li>5a. The PM does not accept the prototype<ol style="list-style-type: none"><li>5a.1. The system saves the review.</li><li>5a.2. The system updates the projects state to (prototype rework).</li><li>5a.3. The system adds the project to the (prototype rework) list.</li></ol></li></ol>

## # The Project State Diagram (Project Status)

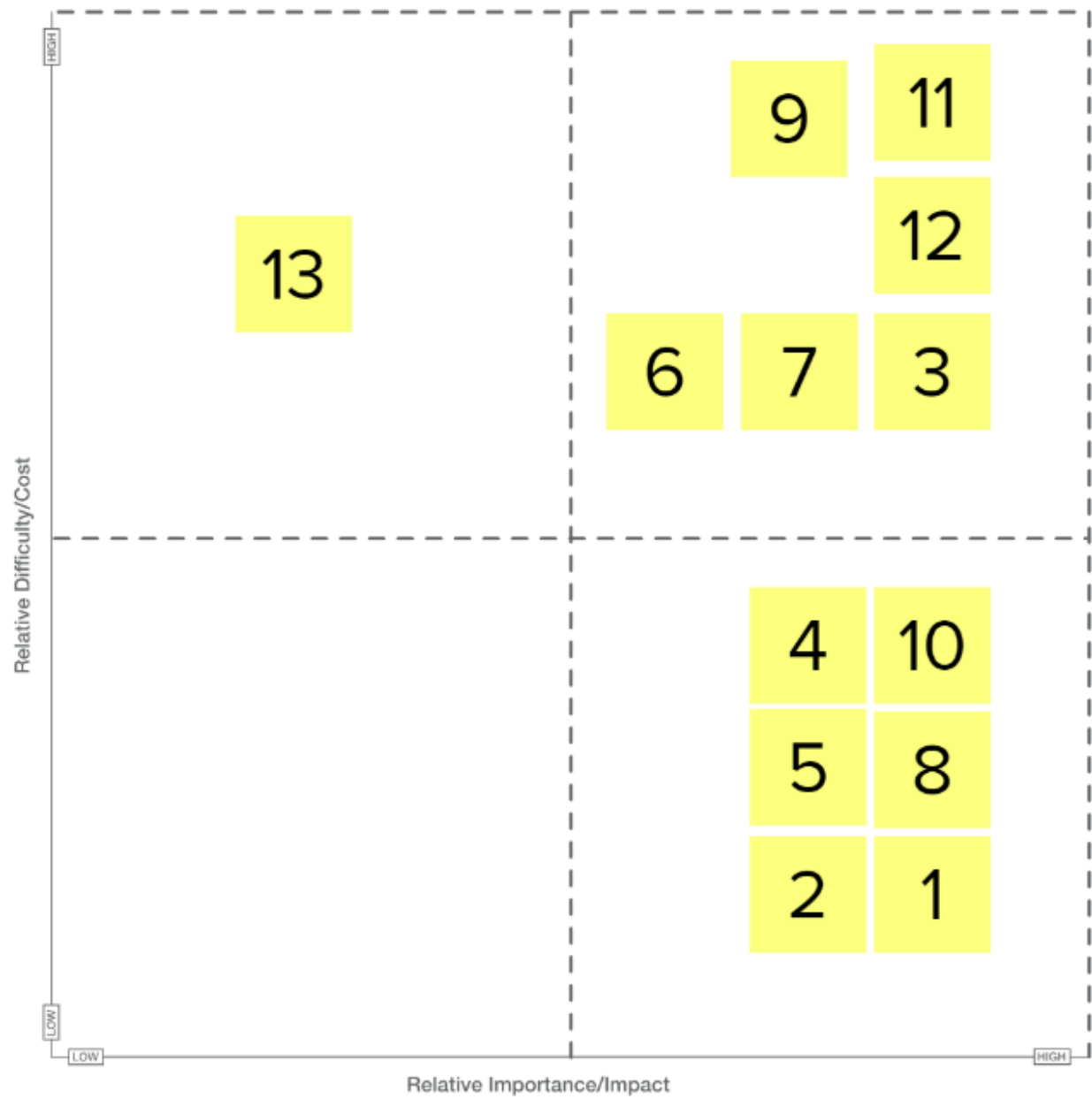


## # User stories

Story ID	As a/an	I want to	So that
1.	Client	Contact a toy factory by email/phone	We can Hold a brainstorming meeting
2.	Client	Hold a brainstorming meeting	I can get a toy prototype
3.	Customer service	Interact with the client in brainstorming meeting	I can Identify client's needs and submit them to the system
4.	Product manager	Get notified about a new project by factory's system	I can assign top designers to make designs
5.	Top Designer	Receive a descriptive requirement	I can start working on the prototype
6.	Product manager	Review the prototype made by the top designer	I can guarantee it is compliant with the proposal
7.	Client	Review the prototype and provide feedback	I can accept the design or demand edits
8.	Customer service	Ensure that no issues with the delivered prototype	I can make the client sign for mass production
9.	Business analyst	Access every project's data	I can Predict the expected revenue for each
10.	Business analyst	Predict the expected revenue	I can Rank the importance of the project on the system to be taken in consideration
11.	Product manager	Access the business analysis of the projects	I can put technical plan for mass production
12.	Business analyst	Put a business plan to higher rank projects	I can invade the market
13.	User	Say a phrase	Login to system

### # Value/Difficulty diagram

Importance/Difficulty Matrix



## # Final notes

- We used <https://plantuml.com/use-case-diagram> to draw our use case diagram.
- UML diagram is made with a scripting language on [plantuml](https://plantuml.com/).
- We used <https://app.mural.co/> to plot the value vs difficulty diagram.
- We used [\(Markdown mermaid\)](#) to generate state diagram.
- We used github as a version control tool to organize our work.



## # Appendix:

### 1- PlantUML use case script:

```
@startuml
left to right direction
actor User as user
actor Client as cl
package Staff as staff{
    actor "Product Manager" as m
    actor Designer as d
    actor "Top Designer" as topd
    actor "Customer Service" as cs
    actor "Bussiness analyst" as ba
}
package ToyFactory {
    usecase "Login" as u_login
    usecase "Interact to submit proposal" as u_sp
    usecase "Devloping the proposed prototype" as u_dp
    usecase "Review the proposed prototype" as u_rp
    usecase "Proudce toys" as u_pt
    usecase "Get feedback" as u_gf
    usecase "Analyze business" as u_ab
    usecase "Interpret proposal into requirements" as u_pr
}
staff -left-> user
topd --> d
user -- u_login
cl -- u_sp
cs -- u_sp
cs -- u_gf
topd -- u_dp
d -- u_pt
m -- u_rp
m -- u_pr
ba -- u_ab
@enduml
```

## 2- Markdown mermaid script.

```
stateDiagram
    [*] --> Proposal
    Proposal --> PrototypeDevelopment
    PrototypeDevelopment --> ManagerReview
    ManagerReview --> PrototypeRework
    ManagerReview --> ClientReview
    PrototypeRework --> ManagerReview
    ClientReview --> MassProduction
    ClientReview --> PrototypeRework
    MassProduction --> [*]
```