

Assignment 1

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.

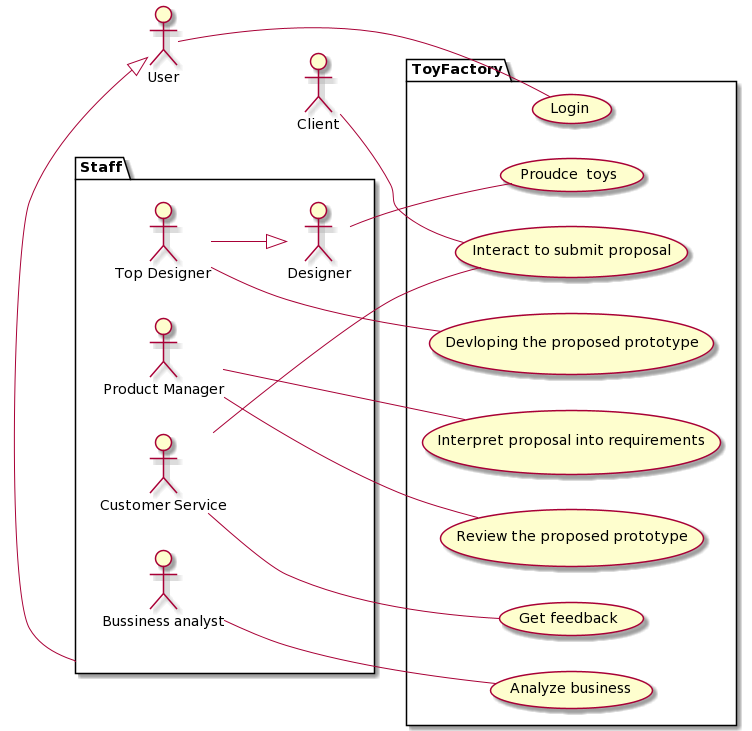
the toy factory has:

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

**# Assumptions**

1. The client submits a proposed design to customer service of the desired toy.
2. Customer service handles the proposal to the product manager.
3. Product manager interprets the proposal of the clients to system requirements and submits it on the factory’s system.
4. The toy factory has an internal software system to let all the “Staff” actors interact with each other.
5. 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.
6. Any actor inside the “Staff” category is considered a user in the factory’s system.
7. 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.
8. Business analyst perform all business analytics needed for the mass production of toys.

**# Use case diagram**



**# Use case description**

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

|  |  |
| --- | --- |
| **Use case** | **Review the proposed prototype** |
| **Actor** | **Customer service** |
| **Trigger** | **A toy prototype is manufactured and waiting for client’s feedback** |
| **Pre-condition** | **A meeting is held between customer service and the client** |
| **Main success scenario** | 1. The client (CL) receives the manufactured toy prototype. 2. Customer service (CS) schedules a meeting with the client. 3. CL analyses the prototype and compares it to the proposed one. 4. CS fills a sheet with the client’s (edits/complaints) when the client has changes. 5. CL totally accepts the proposed prototype when there are no changes. 6. CS writes nothing in the (edits/complaints) sheet 7. CL signs for mass production. 8. CS submits the sheet to the factory’s system (SYS). 9. The SYS saves the sheet and changes the state of the project to waiting for mass production. |
| **Post-conditions** | **The prototype is approved, and the mass production process is going on.** |
| **Extensions** | 3a. The client demands edits to be made to such prototype.  3b. The client totally refuses the proposed prototype.  3b1. Redesign negotiations are setup between the client and product manager.  4a. The CS fills client’s edits section in the sheet and submits it to the project page on the SYS.  4a1. The SYS updates the project’s state to (Prototype Rework)  4a2 The PM gets notification with the edits from the SYS.  4a3. The product manager discusses the time needed for such edits with the top designer.  4a4. The CS informs the client with the time needed for such edit.  4a4a1. The client accepts.  4a4a1a1. Edits are made.  4a4a1a2. CS discusses the new prototype with the client.  4a4a2. The client refuses the proposed time.  3aa2a1. The prototype is refused. |

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

|  |  |
| --- | --- |
| **Use case** | **Review the Proposed Prototype** |
| **Actor** | **Product Manager** |
| **Trigger** | **The top designer finished the prototype design and submits it to the dashboard** |
| **Precondition** | **The product manager is logged in** |
| **Main success scenario** | 1. The product manager (PM) opens the pending projects (waiting for prototype review state) page 2. The system lists all pending designs to be reviewed (waiting for prototype review state) 3. The PM selects a project from the list of projects. 4. The system displays the project page that contains:    1. The list of designs and the designer comments.    2. The client description of the toy.    3. The client info (contacts, history)    4. The project timeline. 5. The PM reads the project description and submits an acceptance prototype review that contains:    1. Rating out of 5.    2. Comments on the prototype. 6. The System saves the review. 7. The system updates the state of the project to (waiting for client review). 8. The system appends the accepted prototype to last of (waiting for client review) list. |
| **Post-conditions** | **The design is accepted** |
| **Extensions** | 5a. The PM does not accept the prototype  5a.1. The system saves the review.  5a.2. The system updates the projects state to (prototype rework).  5a.3. The system adds the project to the (prototype rework) list. |

**# User stories**

|  |  |  |  |
| --- | --- | --- | --- |
| **Story ID** | **As a/an** | **I want to** | **So that** |
|  | Client | Contact a toy factory by email/phone | We can Hold a brainstorming meeting |
|  | Client | Hold a brainstorming meeting | I can get a toy prototype |
|  | Customer service | Interact with the client in brainstorming meeting | I can Identify client’s needs |
|  | Customer service | Identify client’s needs | I can submit a proposal to the factory’s system |
|  | Project manager | Get notified about a new project by factory’s system | I can assign top designers to make designs |
|  | Top Designer | Receive a descriptive proposal | I can start work on the prototype |
|  | Product manager | Review the prototype made by the top designer | I can guarantee it is compliant with the proposal |
|  | Client | Review the prototype and provide feedback | I can accept the design or demand edits |
|  | Customer service | Get feedback from the client about the proposed prototype. | I can make sure that the client is always satisfied |
|  | Customer service | Ensure that no issues with the delivered prototype | I can make the client sign for mass production |
|  | Business analyst | Access the project’s data | I can put a plan for mass production for project’s prototype |
|  | Business analyst | Put a plan for mass production of such prototype | I can get highest revenue after mass production with least cost |

**# Value/Difficulty diagram**

Chart, waterfall chart

Description automatically generated

**# The Project State Diagram (Project Status)**

Diagram

Description automatically generated

**# 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/use-case-diagram).
* We used <https://app.mural.co/> to plot the value vs difficulty diagram.
* We used [(Markdown mermaid)](https://mermaid-js.github.io/mermaid/" \l "/) 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

1. Markdown mermaid script.

stateDiagram

[\*] --> Proposal

Proposal --> PrototypeDevelopment

PrototypeDevelopment--> ManagerReview

ManagerReview --> PrototypeRework

ManagerReview --> ClientReview

PrototypeRework --> ManagerReview

ClientReview --> MassProduction

ClientReview --> PrototypeRework

MassProduction--> [\*]