

Stuck in the Movie

Stuck in the Movie is the largest theater in *Kebon Jeruk* within *Grogol Pertamburan, Jakarta Barat*. As the business grows, the old system becomes outdated, and the theater is planned to be opened in several places nationwide. To improve business management, **Stuck in the Movie's** managers asked you to develop a system to help them manage the business activity. The complete business details of **Stuck in the Movie** are stated below.

1. Manager

The manager ensures **Stuck in the Movie's** cash flow goes well without disturbing the business operation. To achieve that, the manager can view **Stuck in the Movie's revenues** from ticket sales, food orders, beverage orders, advertisements, and partnerships. Besides that, the manager can also view **Stuck in the Movie's expenses**, such as facilities improvement, maintenance, electricity, staff wages, taxes, etc.

In order to make sure the operational activities can operate properly, the manager can view the **Stuck in the Movie's movie schedule**. With this schedule data, important things can be obtained, such as schedule delays, comparisons between the number of tickets sold and the number of attendees, etc. Besides that, the manager also needs to view **Stuck in the Movie's facilities and equipment** to ensure that everything is still in good condition.

One of the new programs that **Stuck in the Movie** has is a membership card (refer to Figure 1). The manager can view **Stuck in the Movie membership** to see if this program is getting a lot of enthusiasm from the visitors.

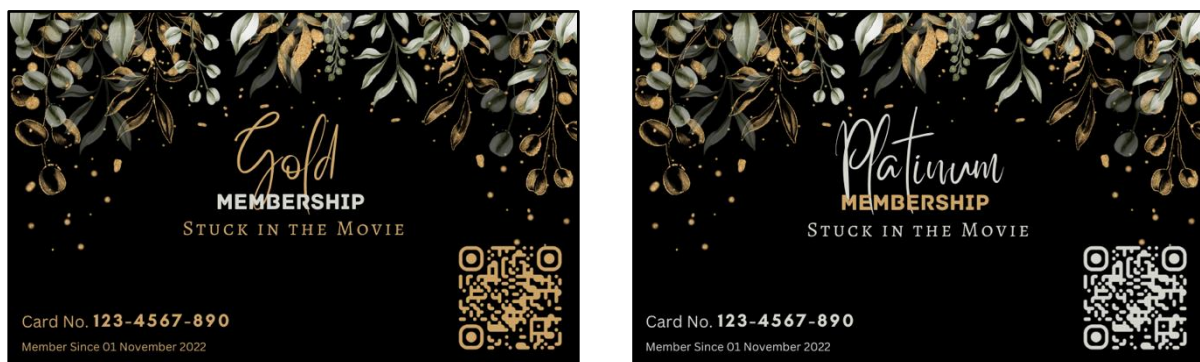


Figure 1. Example of **Stuck in the Movie** Membership Card

Stuck in the Movie has grown from a small theater and now has more than a hundred employees. Therefore, the manager wants to view **Stuck in the Movie's employee**. This data will be used to analyze anything related to employees so that **Stuck in the Movie** can maintain the quality of service. If there is an employee who will **resign**, the manager will decide whether the employee is allowed to resign or not based on the contract and resignation letter that has been submitted at least two months before the resignation.

The reports can be shown as **data visualization** based on a specific time period to make it easier for the manager to analyze. The manager can also **filter data** based on important attributes so that it is easier to find the specific data needed.

2. Human Resource Department

The human resource department is responsible for managing anything related to **Stuck in the Movie's employees**. Therefore, this department has access to view **employees' personal information**, such as job details, contact information, warning letters, salary, personal leave, working time, etc.

This department will also manage the **employees' recruitment**. The process is divided into five stages: registration, candidate selection, technical test, interview, and meeting. After the meeting results are final, the accepted employees will start work at the beginning of next week. For every employee who violates the rules that have been signed in the contract, this department will issue a **warning letter** based on the manager's approval. If the employee has received warning letters more than three times, the employee will be **fired** based on the manager's approval.

Every quarter of the year, Stuck in the Movie always makes **salary adjustments** based on employees' work performance. This department is in charge of preparing a list of employees who will receive a salary change. The manager, together with the human resource department, will discuss whether to accept or reject the employees' salary change. The accepted employees' will be forwarded to the accounting and finance department for further processing.

The human resource department sets employees' **working time**. However, the employees can request to change their working time at the beginning of each month. It is allowed to use data visualization to make it easier for the human resource department to check employee attendance at the end of each month. Besides, each employee can submit a personal leave request for some reason, such as marriage, maternity, sick, bereavement, religious, etc. This request will be reviewed by the human resources department to be accepted or rejected.

3. Accounting and Finance Department

The accounting and finance department is responsible for managing anything related to **Stuck in the Movie's cash flow**. Therefore, this department must know where all of the money goes. Every department that needs money for their operational activities must send a fund request to this department. Then, the accounting and finance department, together with the manager, will review the fund request to be accepted, rejected, or revised. The result will be notified to the related department and storage department if needed.

This department is also in charge of **calculating taxes** based on *Article 58 Paragraph (1) Law Number 1 of 2022 concerning Financial Relations between the Central Government and Regional Government*. Assume that each regional government has the same tax.

4. Storage Department

The storage department is responsible for managing anything related to **Stuck in the Movie's facility and equipment**. This department must label everything Stuck in the Movie owned to make the inventory process more manageable. Besides that, it is also helpful for tracking who, when, and where the facility and equipment were last used.

The storage department is also in charge of **purchasing** new facilities and equipment requested by other departments and has been approved by the accounting and finance departments. After everything listed is purchased, this department will calculate the shortage or excess money based on the actual price and the fund that has been approved by the accounting and finance department. The important data related to purchasing facilities and equipment will be sent to the accounting and finance department as proof of their accountability.

If facilities or equipment is damaged, the storage department will try to **check and fix** it. After the facilities or equipment have been inspected, this department will notify the employee who reported the problem whether the facility or equipment can be fixed or not.

5. External Department

The external department is responsible for **maintaining relationships** between Stuck in the Movie and external parties. The external parties that want to communicate with Stuck in the Movie must go through this department before being transferred to another department, if needed. The information must be summarized and recorded to ensure the shared information is not lost. The manager must know every decision taken by this department.

The external parties are as follows. First, the **movie producers**, who have chosen Stuck in the Movie as the place where the movie will be played. This department is in charge of knowing the details of the movie. This data will be sent to the movie department. After the movie's playing period is over, this department will send detailed reports to external parties.

Second, the **food and beverage suppliers**. This department will search for suppliers who can work together to support the business operations of the Stuck in the Movie cafe. Besides that, this department will contact the supplier to request additional supplies when the stock is running low, based on data from the storage department and approval from the accounting and finance department.

Lastly, the **advertising partner**. This department will search for companies that want to advertise on Stuck in the Movie. Besides that, this department is responsible for knowing the details of the advertisement. The external department must communicate with the accounting and finance department to determine the minimum costs required for the advertisement. After the advertisement period is over, this department will send detailed reports to external parties.

6. Promotion and Event Department

The promotion and event department is responsible for **managing promo or event** that is available on Stuck in the Movie. Therefore, this department can view the list of customers who have become members and inform them about any ongoing promo or event. This department will also generate and distribute vouchers to customers who meet certain criteria based on the analysis results (refer to Figure 2). When the customer wants to use the voucher, the effect will automatically be applied so that the cashier does not need to enter the voucher manually.



Figure 2. Example of Stuck in the Movie Voucher

7. Movie Department

The movie department is the front line for serving customers who want to watch movies at Stuck in the Movie, as well as the theater's main source of income. This department will be divided into **three divisions**, which are:

a. Schedule Division

The schedule division under the movie department is responsible for **scheduling movies** that have a contract with Stuck in the Movie. This division will choose the movies to be shown along with the number of shows on a specific day. After that, the system will create a schedule automatically. However, this division can override the generated schedule.

b. Front Office Division

The front office division under the movie department is responsible for **serving customers** who want to buy Stuck in the Movie's movie tickets (refer to Figure 3). This division will ask for the details of the movie the customer wants to watch. After that, this division will ask for the payment method the customer wants to use, which can be cash, a digital wallet, etc. If the transaction is already successful, the movie ticket will be created, printed, and given to the customer.



Figure 3. Example of Stuck in the Movie Ticket

During the movie ticket purchase, this division will also ask for the customer's **membership card**. If the customer does not have a membership card and wants to create one, then this division will create a membership card with an additional card printing fee. Otherwise, if the customer already has a membership card and wants to use it, this division will scan the card and the points will automatically increase. When the points have reached the minimum usage criteria, then this division will ask if the customer wants to use the points.

c. Operation Division

The operation department is responsible for **preparing the theater's rooms** that will be used for the next schedule. This department needs to guide the customer from the previous schedule to disposing of garbage in the provided place. After that, the theater's rooms will be cleaned. Along with that, this division will also check the movies that will be played, choose the advertisements that will be shown, ensuring the projector can run well, etc. Therefore, this department must be on standby 20 minutes before the movie ends. After the theater's room is ready to use, the door will be opened and this division will checking customer's ticket that have been purchased before.

8. Cafe Department

The cafe department is the front line for serving customers who want to buy foods or beverages as a complement to watch movies at Stuck in the Movie, as well as the theater's second main source of income. This department will be divided into **two divisions**, which are:

a. Front Office Division

The front office division under the cafe department is responsible for **serving customers** who want to buy Stuck in the Movie foods and beverages. This division will ask for the details of the foods and/or beverages the customer wants. After that, this division will ask for the payment method the customer wants to use, which can be cash, a digital wallet, etc. If the transaction is already successful, the receipt will be printed and the system will forward the order to the kitchen division. The customer can check their order's status on the screen above the front office division. When the order's status is ready, the customer can pick up their order by showing the receipt.

b. Kitchen Division

The kitchen division is responsible for **making foods and/or beverages** ordered by the customers according to the customer who ordered first. This division will change the status of the order from ordered to processed. After the foods and/or beverages is made, this division will change the status of the order to ready.

9. Administrator Department

The administrator department is responsible for anything related to the **Stuck in the Movie system**. This department has all privileges to access the system and can manage what menus any department can access. If the employee forgets their password, this department is in charge to securely reset it.

You, as a system analyst, are assigned by Stuck in the Movie's manager to **design the program** based on the business details above. The program's design must be created using **Visual Paradigm Community Edition 16.3 (or later)** based on **System Analysis and Design in a Changing World Edition 7e¹**. Below are diagrams that need to be created:

- a. **Use Case Diagram**
- b. Ten (10) Unique **Full Use Case Descriptions**
- c. Ten (10) Unique **Activity Diagrams**
- d. Ten (10) Unique **Multi-layer Sequence Diagrams** with Fragment(s)
- e. **Updated Class Diagram** with Relationships

Because the number of full use case description, activity diagrams, and multi-layer sequence diagrams are limited, you are not allowed to choose use cases with simple logic. You are allowed to make assumptions about the program's design, but it must be logical and you must be able to explain all the created diagrams.

¹ Satzinger J. W. Jackson R. B. & Burd S. D. (2016). Systems Analysis and Design in a Changing World (7th ed.). Thomson Course Technology.

Implement the program's design that has been created previously into an **internal program** that can be used by Stuck in the Movie. The program is free to be made using any front-end technology as long as it is packaged as a desktop application using **Electron 20.0.1 (or later)** and the program must use **Firebase** as its backend and database. To make the program's code neater, there must be **at least three design patterns** used in the program with correct uses. Because the program is used by many employees of various ages, it must be made to **minimize human error** dan provide a **good user experience**. Besides that, the program also needs a **timestamps** and a **soft deletion** to find out if there is a data error.

$O(n_n)O$ **Good Luck** $O(n_n)O$