# VIETNAM GENERAL CONFEDERATION OF LABOR TON DUC THANG UNIVERSITY FACULTY OF INFORMATION TECHNOLOGY



# FINAL PROJECT REPORT INFORMATION SYSTEMS MANAGEMENT SUBJECT

# **Information System for StuFood Company**

Instructor: TS.HÖ THỊ THANH TUYẾN

Students: ĐÀO TƯỜNG LÂM QUYỀN ANH— 520H0509

VÕ VƯƠNG HÓA—520H0534

NGUYỄN QUỲNH NHƯ—520H0562

TRÀ LÂM THANH HÀ—520H0627

Course: 24

THÀNH PHỐ HÒ CHÍ MINH, 2023

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#### **ACKNOWLEDGEMENTS**

After a semester of studying Information system management at Ton Duc Thang University, we want to give our sincere thanks to our teachers and Faculty of Information Technology for bringing a desired condition for students able to complete their course with real-life problem seminars.

We want to express our gratitude for our lecturer – Hồ Thị Thanh Tuyến - who helped us a lot on this course, giving us information about ERP so that we can improve our knowledge, our planning skill, and analysing skills. We have used this useful technique our others course for the final project, and happily, we got a great score.

Once again, we truly grateful for everyone that helps us. Maybe this report has some mistakes because this is our first report on this course, so we really want to take the comments of the teacher and lecturer for our improvement in future projects.

With sincere thanks.

# THE PROJECT IS COMPLETED AT TON DUC THANG UNIVERSITY

I assure this is my own project with the instruction of Hồ Thị Thanh Tuyến. All the researches, the results in this report are trustworthy and have never been announced in any appearance before. The data in tables for analysis, comments, evaluations were collected by the student in many different sources, which have clearly written in references.

Besides, I used some comments, evaluations, analysis and data of other writer, organizations in the project – which is also in the citations and source notes.

If there is any fraud in my project, I will take full responsibility for my report content. Ton Duc Thang University is not related to the copyright infringement that I made during the implementation process (if available).

Ho Chi Minh City, 4th December 2023

Author

(Full name and signature)

# INSTRUCTOR VERIFICATION AND EVALUATION SECTION **Confirmation from the instructor** Tp. Hồ Chí Minh, ngày tháng năm (kí và ghi họ tên) The teacher's evaluation part marks the test

Tp. Hồ Chí Minh, ngày tháng năm (kí và ghi họ tên)

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# Task I: Introducing Stufood company

#### 1. Objectives and mission

#### **Objectives:**

- To provide high-quality food to students at a reasonable price.
- To create jobs and support the local economy.

#### Mission:

- To be the leading provider of food chains for schools.
- To be a "Friend" of students on each meal.

#### 2. Industry and history

The company's target industry is food service.

#### **History:**

The company was founded in 2010 as a small food stall near a primary school. It quickly became popular with students and some parents buying take away breakfast for their children. Therefore, the primary school has decided to order our food for students' meals since 2015, and in 2020, the company expanded to provide food chains for other schools.

#### 3. Scale and organizational chart

Currently, Stufood provides food services to 10 schools with about 2,000 students. Stufood' organizational chart is designed to ensure an efficient food supply process and a quick response to each school's needs. Key roles include:

- Chief Executive Officer (CEO): Responsible for business strategy and organizational management.
- Main Chef: Responsible for the food preparation process, ensuring quality and variety in the menu.
- Customer Service Manager: Liaise with schools and ensure service satisfaction.

- Delivery Officer: In charge of transporting food by truck to each school.

#### 4. Business fields and functions

Business area: Food service

**Function:** The company provides food chains for schools. This includes meal planning, food preparation, and delivery.

- Meal planning: From a variety of sources: student votes, school suggestions, etc. But in some cases, students do not care about their health or schools do not have enough finances to prepare quality ingredients. Therefore, meal planning is essential and is determined by many factors: student behavior, health balance, student culture, economics, ...
- Food Preparation: Our company has our indoor planting for specific kinds of vegetables and fruits and greens. In 2010 to 2015, we imported from the supermarket to get more fresh meats and sauces or seasoning. From 2016 to now, we collaborated with a supplement company.
- Delivery: We partner with Grab or other delivery platforms with schools, we will use our own trucks to deliver food to schools. And the truck will arrive 2 hours before lunch or dinner time.

#### Task II: StuFood's current information system

#### 1. Industry structure and the organization's target market share goals

#### **Industry structure:**

- Supplier power: High-Moderate power, as there are some local suppliers and familiar suppliers, so the quality can be guaranteed. The company has some local suppliers and familiar suppliers, which gives them some bargaining power with suppliers. However, the company also faces competition from other suppliers, so their power is not absolute.
- Buyer power: Moderate power, because the company's customers are not only schools but also individual customers such as students, office workers, etc. There is also an ordering system through Grab, Gojek, Baemin, Be, etc. Because the number of schools the company supplies food to is quite large and the surrounding area does not have many large-scale food suppliers, it can gain commercial advantages for customers. However, the company also faces competition from other food service companies, so its power is not absolute.
- Threat of new entrants: The threat of new entrants into the school food service market is high. This is because there are low barriers to entry into the market, and there is a large potential customer base.

However, the company faces some challenges in attracting school customers. Most schools in HCM cook for themselves or have other sources of food. This will make it difficult for the company to compete with these schools.

- Threat of substitute products: The threat of substitute products in the food service industry is retail restaurants. For example: If boarding meals do not suit the taste or users' satisfaction, students will withdraw from boarding to eat out, thereby also reducing the number of customers.

- Competitive Competition: Competition in the food service industry is high. This is because there are a lot of competitors in the industry and they are all important for market share.

#### **Target market share**

- The company could initially focus on a small geographic area, such as a city or county. Once the company has established itself in that market, it could expand to other geographic areas.

# 2. The organization's competitive strategy in each period from now to the next 10 years

#### **Current competitive strategy**

- The competitive strategy of the unreal company is to provide high-quality food at a reasonable price. The company would also focus on providing excellent customer service.

#### **Future competitive strategy**

- The company could differentiate itself from other food service companies by focusing on healthy and nutritious meals. The company could also develop a strong social responsibility program, such as donating meals to students in need.

# 3. System value chain, identify and analyze the primary/support activities in the value chain that you consider most important

#### Main activities

- Inbound Logistics:
  - o Identify: Receive and manage raw materials and supplies from suppliers.
  - Analysis: Manage supplier relationships to ensure a stable supply and high quality of food ingredients.

#### - Operations:

- o Identify: Food processing and meal production.
- Analysis: Optimize production processes to ensure high quality and performance.

#### - Outbound Logistics:

- Identify: The process of transporting and distributing food to points of sale and customers.
- Analysis: Optimize delivery system to ensure on-time delivery and effective shipping costs.

#### - Marketing and Sales:

- o Identify: Product promotion and sales activities.
- Analysis: Develop marketing strategy to increase brand awareness and attract target audience.

#### - Customer Service:

- o Identify: Provide support and problem resolution services to customers.
- Analysis: Build a customer feedback system to improve service and maintain long-term relationships with customers.

#### **Support activities**

#### - Procurement:

- o Identify: Manage the procurement process and negotiate with suppliers.
- Analysis: Optimize the negotiation process to reduce costs and ensure raw material quality.

#### - Technology Development:

- Identify: Research and develop technology related to cooking and business management.
- Analysis: Invest in new technology to improve production and management processes.

#### - Human Resource Management:

- Identify: Human resource management and development, including employee training and talent retention.
- Analysis: Build a quality human resources team to ensure employee performance and satisfaction.

#### - Infrastructure:

- o Identify: Build and maintain physical and technological infrastructure.
- o Analysis: Ensure that infrastructure meets current and future production and distribution needs.

# 4. Organizational structure of information system 5 components: hardware, software, people, processes and data

#### People

- Management personnel:
  - These individuals bear the responsibility of overseeing the information system's overall management, encompassing planning, development, implementation, and maintenance.

#### - Technical staff:

- These experts are tasked with implementing and maintaining the system's hardware and software components.
- Operations staff:
  - This team is responsible for the smooth operation of the information system, including data entry, processing, and output.
- Users: These individuals are the primary users of the information system, utilizing it to perform their assigned tasks.

#### **Data and process**

- Data entry process: This meticulously structured process involves collecting data from diverse sources, including suppliers, customers, and employees.
- Data processing process: This data undergoes rigorous analysis and processing to transform it into valuable information.
- Data output process: The processed data is then presented to users in a clear and accessible format, often through reports, charts, or tables.

#### Hardware

- Server: The system's central processing unit.
- Workstation: Individual computer devices that enable users to interact with the system.
- Storage Device: Safely stores the system's data.
- Network Device: Facilitates communication between system components.

#### **Software**

- Operating System: Provides the platform for the system to operate and manage hardware resources.
- Application Software: Specialized programs designed to perform specific tasks, such as data processing or report generation.
- Security Software: Protects the system against security threats, ensuring data confidentiality, integrity, and availability.

### Task III: Organizational problem

#### Existing problems of the old system and expected goals of the new system

#### a. Current issues with the old system

#### - Managing Orders via Excel:

- Challenges in Data Management: Using Excel for order management can lead to difficulties in navigating, searching, and tracking order information.
- Risk of Data Loss: Excel is not an efficient data storage tool, and there is a risk of data loss without proper backup measures.

#### - Lack of Ordering Website:

- Lack of Features: Customers not having an online interface for placing orders can diminish their experience and increase the likelihood of them shifting to competitors with more convenient ordering websites.
- Limited Accessibility: Only accepting orders through personal contact or through acquaintances can restrict access to new customers.

#### - Marketing and Sales:

- Lack of Online Integration: The absence of an ordering website can reduce the ability to reach and interact with customers online, a crucial aspect of modern marketing strategies.
- Inefficiency in Customer Data Collection: The lack of an online channel can make customer data collection more challenging, which is essential for building an effective marketing strategy.

#### b. Expected goals of the new system

#### - Order Management:

- Integrated Order Management System (OMS): Implement an OMS to efficiently manage orders, aiding in the automated tracking, confirmation, and processing of orders.
- Data Security: Ensure that the new system incorporates robust security measures to prevent data loss and ensure the integrity of order information.

#### - Online Ordering Website:

- Build a Professional Ordering Website: Create a convenient, userfriendly, and professional online ordering website to enhance the customer experience.
- o Integrate Secure Payment Systems: Provide secure and convenient payment methods to encourage online ordering.

#### - Marketing and Sales:

- Develop Online Marketing Strategy: Develop an online marketing strategy to enhance product advertising and marketing through online channels such as paid advertising, search engine optimization (SEO), and social media advertising.
- Effective Customer Data Collection: Use technology to collect and analyze customer data from the website and order management system to better understand customers and optimize marketing strategies.

#### - User Interface (UI/UX):

 Design an Engaging User Interface: Build a user-friendly, engaging interface to encourage user interaction and positive user experiences.

#### - Support and Customer Service:

 Establish Online Support System: Provide online channels such as live chat, email, or phone to support customers and resolve inquiries quickly.
 Create an Online Community: Build an online community around the product or service to foster interaction and community support.

#### The system components/structures from which these problems originate

#### **Data and process**

- Data entry process:
  - Diverse data sources: Issues may arise from the lack of standardization in collecting data from various sources. Inconsistent information gathering could lead to inaccurate or incomplete data.
  - Data quality: If data collection processes lack quality control, there's a risk of inaccurate or missing data, leading to potential issues.
- Data processing process:
  - Inefficient processing methods: Poorly implemented software or processing methods could lead to inaccuracies or inefficiencies in data processing.
  - o Information security:
    - + Risk of Data Loss: While storing data in Excel spreadsheets, there is a high risk of data loss due to user errors, file corruption, or other issues.
    - + Lack of Access Control: Excel lacks robust access control mechanisms compared to modern data management systems. This means it's not easy to manage who has access, edit, or view data.
    - + Potential for Sensitive Information Disclosure: In Excel, there are no strong mechanisms to hide or protect sensitive information in cells. If access is not tightly managed, sensitive information may be exposed.

- + Difficulty in Tracking Changes: Tracking changes in data and identifying who made those changes can be challenging in Excel compared to advanced data management systems.
- + Security Risks: The absence of security measures such as encryption and access control lists in Excel can increase the risk of information security breaches.

#### - Data output process:

- Formatting and presentation: If data is presented unclearly or in an incomprehensible format, and is not represented through charts, users might struggle to understand or utilize the information effectively.
- Accessibility: If the data output structure isn't flexible or easily accessible, users might face challenges in efficiently accessing information.

#### Hardware

#### - Server:

 Performance issues: If there is no dedicated system, one has to rely on freely available products.

#### - Workstation:

 Individual interaction and performance issues: If workstations fail to meet user demands, it can cause dissatisfaction and reduced productivity.
 Hardware or software issues can lead to system crashes or instability.

#### - Storage Device:

 Capacity and security concerns: Insufficient storage capacity can limit data or hamper system efficiency. Data security issues can pose risks of data loss.

#### - Network Device:

 Connectivity and security concerns: Improper network device functioning can cause connectivity issues between system components.
 Additionally, network security problems may lead to intrusions or data breaches.

#### Software

#### - Operating System:

- Compatibility and Stability: Issues can arise if the operating system isn't compatible with certain hardware or software components.
   Incompatibility might cause system crashes or instability.
- Performance and Resource Management: Inadequate resource management by the operating system could lead to performance bottlenecks, slowing down the system.

#### - Application Software:

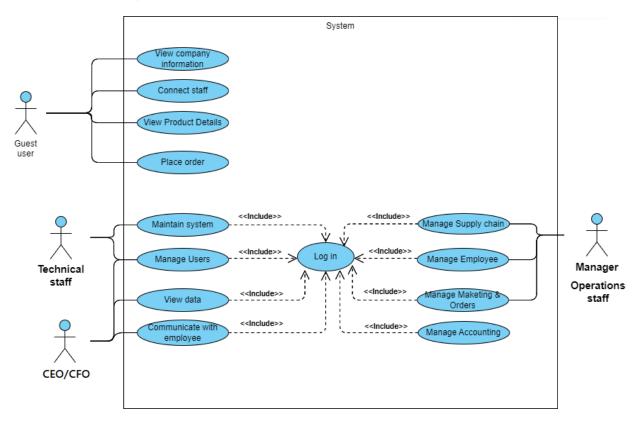
- Functionality and Performance: Issues may stem from software not performing as expected, leading to errors, crashes, or inefficiencies in performing tasks.
- o Integration and Compatibility: If applications don't integrate well or aren't compatible with other system components, it can lead to data transfer issues or inefficiencies in task execution.

#### - Security Software:

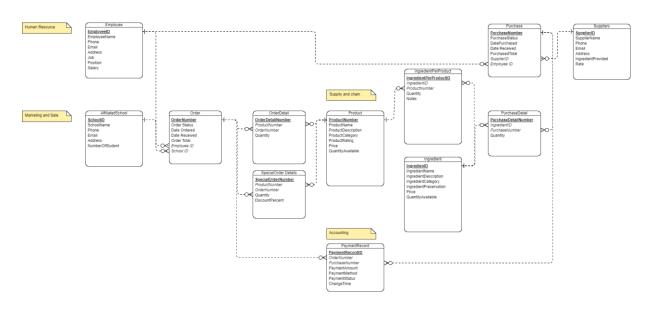
- Vulnerabilities and Updates: Outdated security software may expose the system to new threats. Failure to update or patch security software can leave the system vulnerable to attacks.
- Resource Consumption: Some security software might consume significant system resources, impacting overall system performance.

Task IV: New system of StuFood company

# Use case digram:



#### **ERD**



#### **Class Diagram:**



#### New system change/improvement process

#### **Ordering and Delivery Process**

#### Improve:

- Customers can place orders through the website or mobile app, increasing convenience.
- Integrate information systems with warehouses to track food inventory and ensure balance between demand and supply.
- Use a location tracking system to ensure deliveries arrive at the right location and on time. Optimize delivery schedules to ensure arrival before the specified time.

#### **Meal Planning Process**

#### Improve:

- Integrate a system to assess student needs and feedback from schools to optimize daily menus.

#### **Supply Chain Management Process**

#### Improve:

- Integrate systems with suppliers to automatically place orders based on inventory levels and demand predictions.
- Using technology to track the origin and transportation process of food, ensuring food quality and safety.
- Automatically update inventory and order data into the system, reducing the risk of errors.

#### Analyze and evaluate new changes/proposals

#### **Ordering and Delivery Process**

#### Benefit:

- The new system speeds up the ordering process reducing delays and increasing convenience.
- The new system helps customers easily track order history, offers and product information. Enhance interaction between students, schools and systems.
- Ensure accuracy and correct location in the delivery process. Increase the flexibility and efficiency of the delivery process.

#### Evaluate:

Change helps optimize workflows and create a positive customer experience.
 These changes support the organization's competitive strategic goals by improving service and customer interactions.

#### **Meal Planning Process**

#### Benefit:

- o Ensure menus accurately reflect student and school needs.
- o Optimize ingredient sources and meal preparation processes.

#### Evaluate:

 Improvements in the meal planning process not only meet the needs of the target audience but also increase efficiency and flexibility in business processes.

#### **Supply Chain Management Process**

#### Benefit:

- o Optimize the ordering process, reduce time and costs.
- Transparency of food origin helps build trust with customers and partners, while ensuring food safety.

#### Evaluate:

 The changes help improve performance across the supply chain and increase transparency, which is important for maintaining relationships with partners and customers.

#### Task V: Evaluation, Conclusion

#### Conclude

#### **Pros**

- Improved Efficiency: The proposed system promises to streamline various processes, from order management to supply chain operations, leading to increased efficiency.
- Enhanced Customer Experience: The introduction of an online ordering system and improved delivery processes is likely to enhance the overall customer experience, making it more convenient and user-friendly.
- Data Security: The new system incorporates robust security measures, addressing the vulnerabilities present in the old system and ensuring the confidentiality and integrity of data.
- Strategic Alignment: The proposed changes align well with the company's competitive strategy, emphasizing quality, customer service, and a focus on healthy and nutritious meals.

#### **Cons**

- Implementation Challenges: Implementing a comprehensive new system involves potential challenges such as technical complexities, staff training, and potential resistance to change.
- Costs: The upfront costs associated with implementing the new system, including software development, hardware upgrades, and training, may be significant.
- Integration Risks: Integrating the new system with existing processes and databases may pose challenges, and any disruptions during the transition could impact operations.

#### **Evaluation**

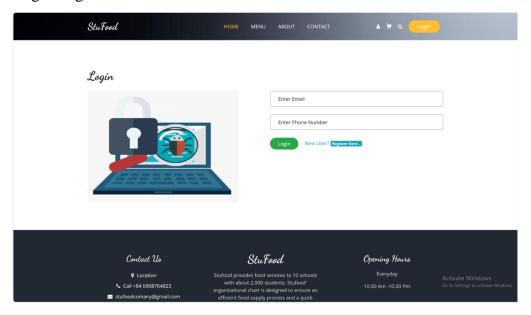
- The proposed changes appear to be a positive step forward for the organization. The emphasis on technology-driven improvements, such as the online ordering system and supply chain integration, aligns well with the evolving demands of the food service industry. The focus on data security is particularly commendable, addressing the shortcomings identified in the old system.
- However, careful consideration must be given to the potential challenges and costs associated with the implementation.

## Task VI: Demo

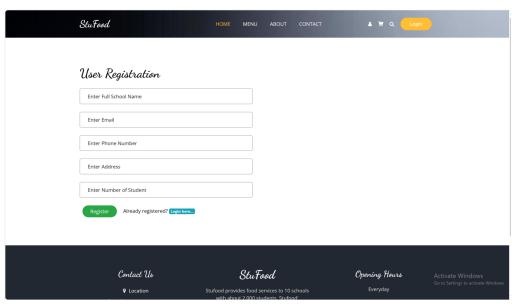
## **Web Client**

Link: <a href="https://github.com/DaoQuyenAnh2202/Final\_MIS">https://github.com/DaoQuyenAnh2202/Final\_MIS</a>

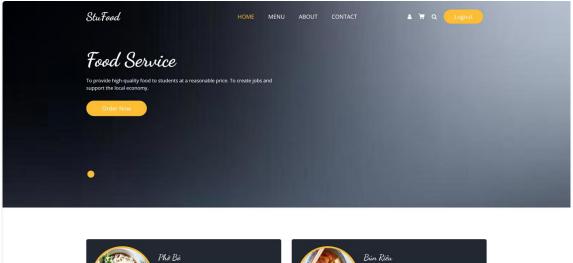
# Login Page



## Registration Page



## **Home Page**





Contact Us

♥ Location
• Call +84 0908764823
■ stufoodcomany@gmail.com



Introducing Stufood Company

The company was founded in 2010 as a small food stall near a primary school. It quickly became popular with students and some parents buying take away breaklast for their children. Therefore, the primary school has decided to order our food for students' meals since 2015, and in 2020, the company expanded to provide food chains for other schools.

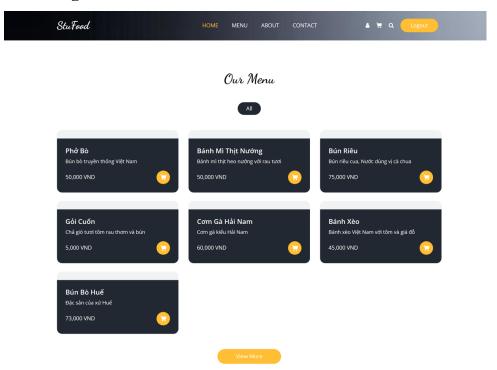
Read More

Stufood provides food services to 10 schools with about 2,000 students. Stufood' organizational chart is designed to ensure an efficient food supply process and a quick response to each school's needs.

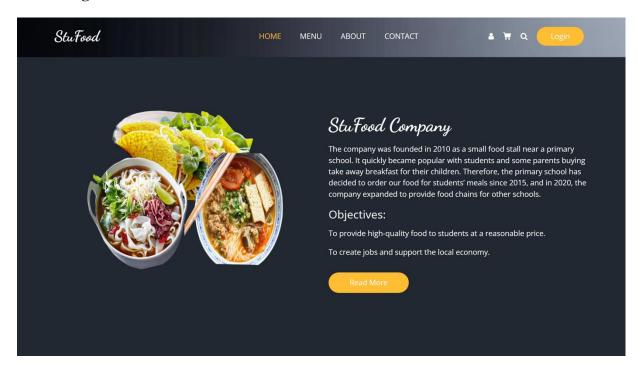
\*\*The Company was founded in 2010 as a small food students. Stufood' on the school's media. The school's media is the school's needs.

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#### Menu Page



#### **About Page**

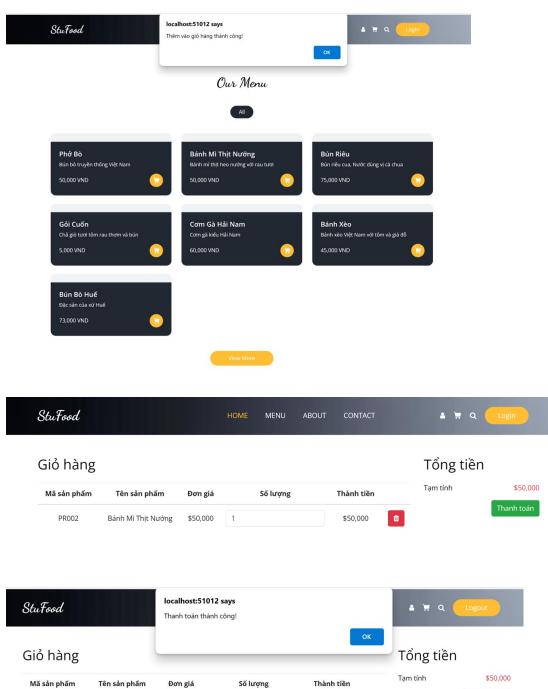


#### **Order function**

PR002

Bánh Mì Thịt Nướng

\$50,000



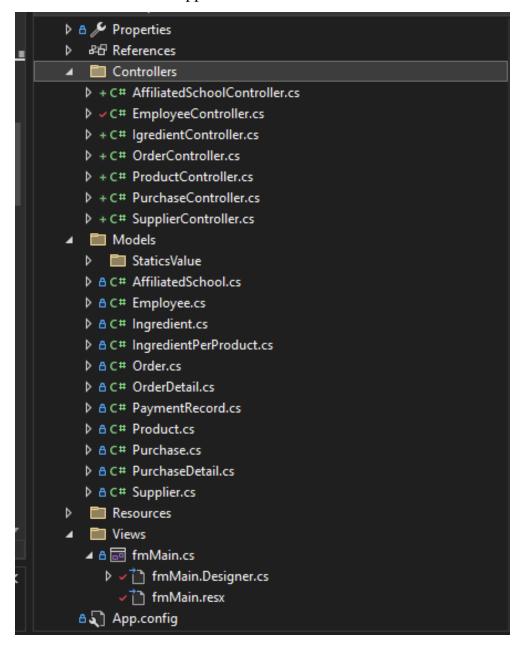
\$50,000

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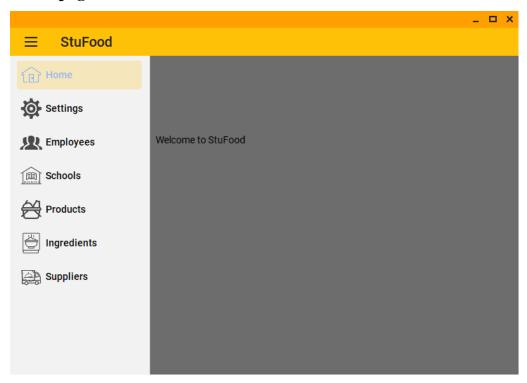
#### **Admin App**

Link: <a href="https://github.com/nguyeqh/MIS\_StufoodSystem\_ADMIN">https://github.com/nguyeqh/MIS\_StufoodSystem\_ADMIN</a>

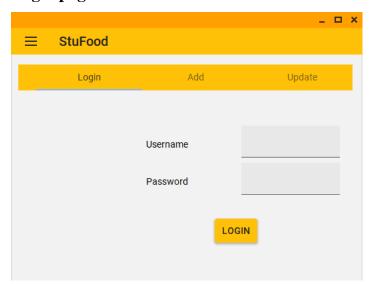
The structure of admin app – use MVC



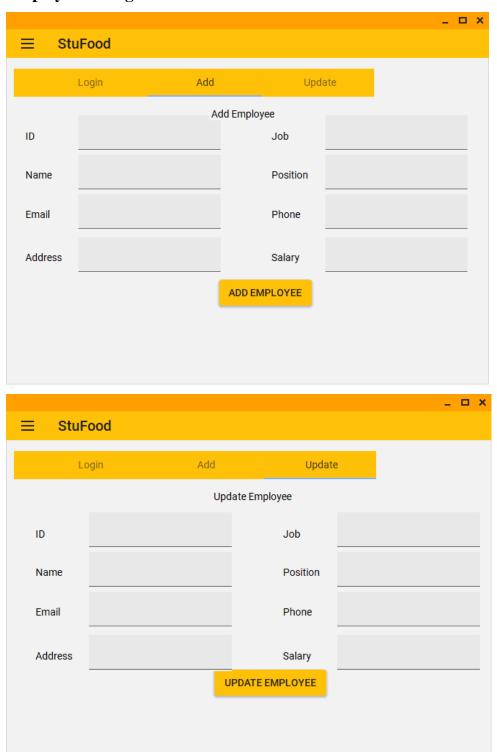
# Home page



## Login page



# $\label{lem:eq:encourse} \textbf{Employee management screen} - \textbf{for Human resource}$



# Affiliated school management screen



# **Product management screen**

= StuFood								
	Update	Orders	Purchases					
Add Product								
		Description						
		Ratings Quantity	Price					
		Ingredient Type ingred	lient					
ADD PRODUCT								
			_ 🗆 ×					
<b>≡</b> StuFood								
dd	Update	Orders	Purchases					
Update Product								
		Description –						
		Ratings Quantity	Price					
		Ingredient Type ingr	edient					
UPDATE PRODUCT								
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