

## Proposing An AI Solution To Help Lemon Tea Shop NHA TO Increase Profits



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## □ Introduction

It can be seen that the lifestyle of young people today needs a close and popular space to gather with friends. Because of the extremely high demand, the lemon tea business is always in a state of "buying and selling expensive", while the cost of a cup of lemon tea is low, but the profit is quick. On average, opening a sidewalk lemon tea shop can bring in a profit of 60-80 million dong after deducting all costs.

Not only that, the lemon tea business is easy to combine with other typical eating models such as snacks. Because of the attractive profits and quick capital recovery, the lemon tea business model will be easily replicated into chain chain if you know how to manage and "see the position well".

In the summer, a lot of cheap drink shops are born, providing an area for everyone - mostly young people to sit and talk and share with each other. In recent years, in addition to the traditional iced tea shops, a series of lemon tea shops have begun to grow stronger. It can be said that opening a lemon tea shop is one of the business options that requires very little capital but earns great profits. on super profits. People, especially young people like open, simple, comfortable spaces to sit and talk with each other.

The lemon tea shop [NHA TO](#) is at 60 Duong Van Be, Hoang Mai, Hanoi. Located in the center of many means of transportation, near Vinh Tuy elementary schools, Vinh Tuy junior high schools, business and public universities The density of students is high, so the lemon tea shop "NHA TO" was born. After 6 months of business operation, the number of customers coming to drink as well as order take-out decreased compared to the opening period, making the revenue of the restaurant decrease.

- **The reason:**
    - Customers feel that the service staff is not good.
    - Drinks are not as good as before.
    - Serving customers for too long.
    - Customers complain on the restaurant's pages...
  - **The desire is to find a solution:** Can identify the needs and habits of customers when coming to the shop to increase revenue and profit.
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## □ Planning

- **List of possible solutions:**
  - Anticipating the demand for lemon tea of today's youth.
  - Predict what time the shop will be crowded so that the layout is reasonable.

- Add more staff if needed to prepare for delivery if the shop is overloaded.
- Automatically collect complaints on fanpage, on shipping application, via facebook...
- How long does it take each customer to order.
- Predict the most frequently ordered dishes or drinks.
- Can add staff to best serve customers.
- You can use promotions, or minigames via facebook or through the delivery application.
- Save the phone number, name of the customer to accumulate points or make a discount code for the loyal customers of the shop.
- Customer voice recognition.
- Using software that can save the customer's face, name and before or order a drink or something.
- ->\* Each solution has different advantages and disadvantages, bringing different benefits, but they all increase the revenue of the shop.

## Choose a solution

Using the software, you can save the customer's face to tell you what the customer's name is and before or before ordering a drink or dish. So that when the customer enters the store, we can know what the customer's name is, before or when drinking from there every time. Customers ordering food can say: "Yes! E hello Mr(sister) Nguyen Van A yesterday, you ordered this drink today, do you want to try to change it to another flavor, now my shop has a new and delicious taste. After drinking it, I will give you a little review."

When the staff say so, it will create a feeling of familiarity, fun and appreciation for this restaurant from which customers will come back more.

-> *Customers come back a lot, inviting more friends from there will make the shop's revenue.*

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## □ Build

### • Description attribute

- What kind of face does the customer have: oval, round, square...
- Long or short hair color of hair.
- How tall is the guest?
- The customer is male or female.
- What is the name of the guest: Mr. A, Ms. B, Ms. C...
- Favorite drinks: honey lemon tea, kumquat aloe vera tea, peach orange lemongrass tea, snack set, sunflower ..
- Go with friends or alone.
- Hours often come.
- Guests often go on holidays or not.
- Which season is more crowded.

- How often does the guest return?
  - **Label attributes to predict:** Identify the customer's face, then state what the customer's name is, drink before calling.
  - **Data collection method:** The data can be collected and calculated manually, taking photos of guests and attaching a note: "guess name, drink, ordered dish" then using AI we will use an algorithm to teach the machine that this is a guest What does A order, customer B, C... order something. From there, the machine will learn the math and will handle it automatically every time customers A, B, C... come to the shop.
  - **Deployment techniques and model building:**
    - Initially, it is a supervised learning method. Because supervised learning is that we have used previously labeled data to infer the relationship between the output and the input. At first we label it. Here is what customer A ordered, what customer B ordered.
    - After learning that we don't monitor it anymore, it will adjust itself every time a guest comes in. It will have to identify itself as customer A and what has been ordered before, this is what guest B ordered =) unsupervised learning.
    - Deep learning, the machine learning has to learn slowly, adjust a little, perform the math many times to save, each time tweak a little to improve the results. To train the AI we gather historical data of customers upon arrival. Take the input from the dataset then compare its output with the sample dataset output. Once we're done with the data set, we can create a function that displays the deviation of the AI's output from the actual output. This function is called the training Cost Function.
    - Image recognition: At first, we teach it to learn, then the machine will have to self-align so that the customer's name must match the customer's face
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## □ Evaluate

Thanks to the image recognition method to know what the customer's name is and the dish that he or she ordered before, then to know the preferences and needs of the customer, it is also known as applying AI solutions in real life. Helped the restaurant to leave a deep impression in the hearts of customers, creating a feeling of being able to know the preferences of customers, so that customers will come more and invite more friends and relatives to the shop to help. The revenue of the shop is increasing, the shop will grow stronger.