

## **Project Research and Design Documentation Step 2 and 5**

**Project Name: AI Disease Detection System**

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# **I. Product Summary**

## **1.1 Product Background Research:**

Nowadays, people pay more and more attention to the prevention of diseases and timely medical examinations, but the huge burden of disease makes many people unable to enjoy timely medical services. The establishment of this intelligent disease detection system can greatly reduce the primary diagnosis of diseases, thereby reducing the pressure of medical treatment in areas with heavy disease burden. If the patient has only a few superficial symptoms, it is reasonable to expect which diseases will develop in the future, so that the examination and treatment can be done in advance.

## **1.2 Product Introduction:**

Intelligent disease monitoring system is a product that provides customers with simple pre-medical diagnosis and related treatment recommendations (currently mainly covering 28 bacterial infections that may have flu symptoms and severe skin diseases)

## **1.3 Product Covered Topics:**

Natural Language processor, Mapping, Logistical analysis and implementation, Machine Learning, Implementation & Analysis of Searching algorithms

## **1.4 Product Goals and Target User Group:**

The establishment of this intelligent disease triage system can greatly reduce the primary diagnosis of diseases, thereby reducing the pressure of medical treatment in areas with heavy disease burden. If the patient has only a few superficial symptoms, it is reasonable to expect which

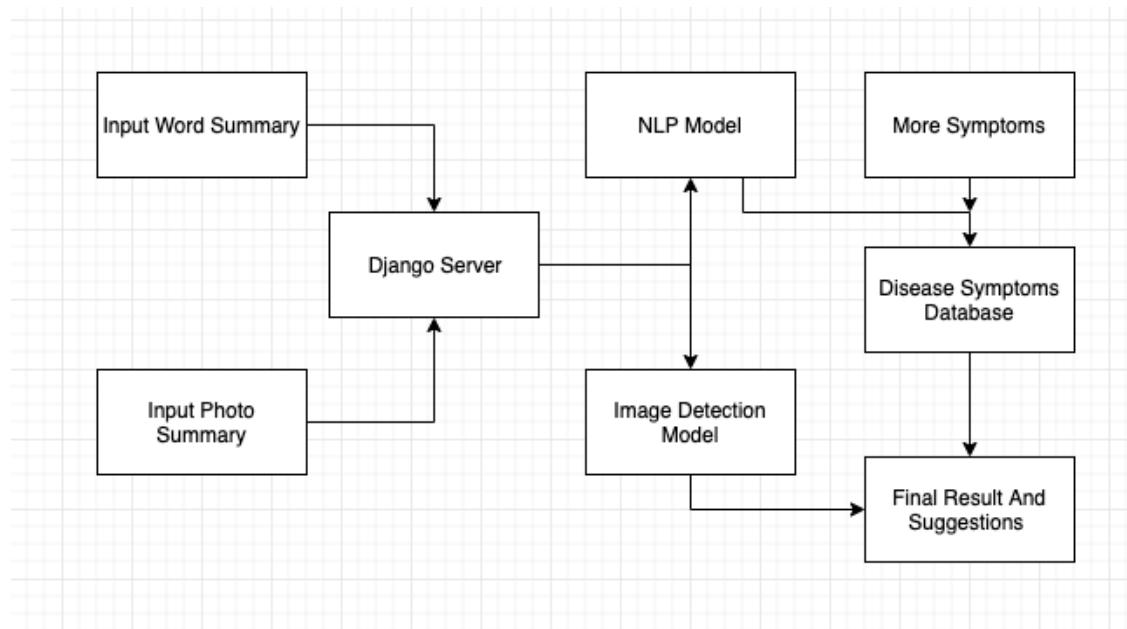
diseases will develop in the future, so that the examination and treatment can be done in advance.

### **1.5 Product limitation and development:**

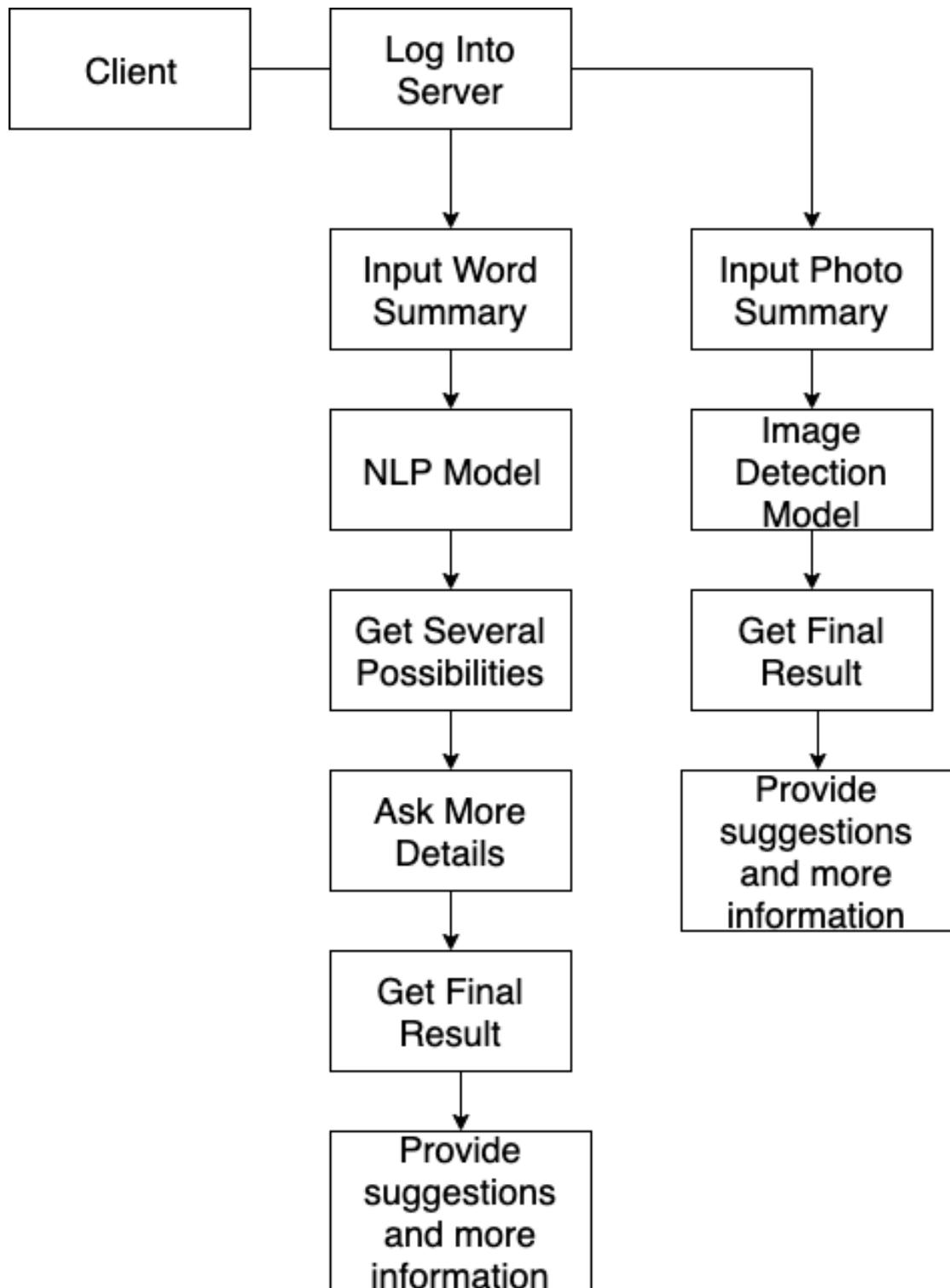
Due the time and medical security issues, for now we only get the Medical data authorization from Influenza Research Database, TB-PACTS 2.0 and **ISIC2019** competition. If we can successfully get more medical data of other diseases in the same format, this product is definitely reproducible.

## **2. Product Overall Framework and Process**

### **2.1 Product Functional Architecture Diagram:**

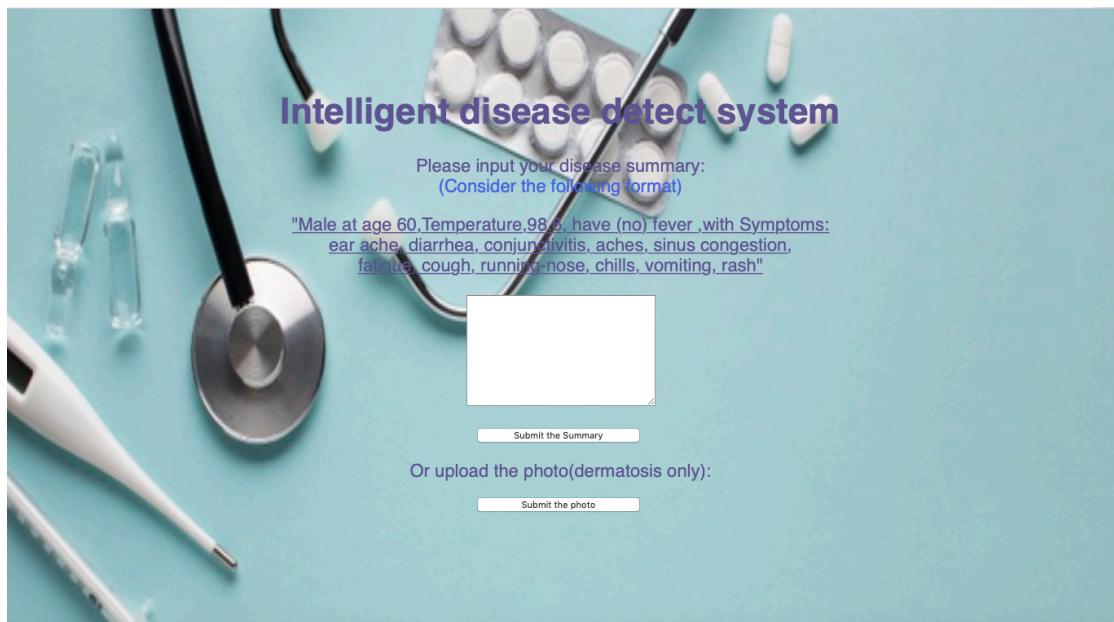


## **2.2 Product flow chart:**

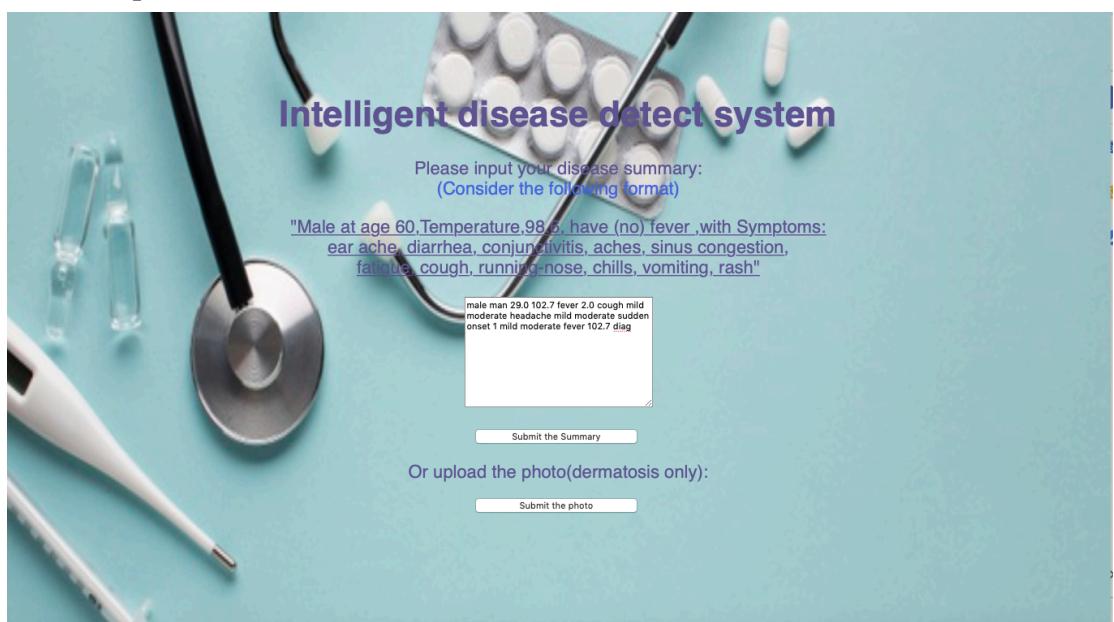


### 3. Product Prototype Diagram

First Page:



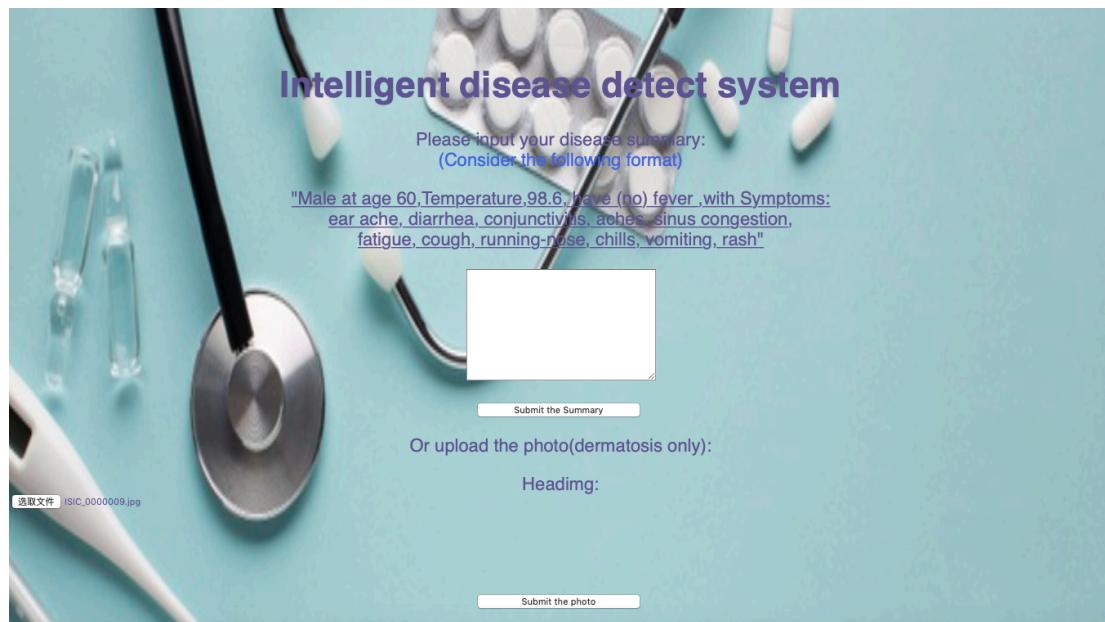
Word\_Input:



## NLP Model and ask more symptoms:

The screenshot shows a web-based application titled "NLP Model Result and Further Analysis". It displays a message: "Based on your description and our database, we conclude that you may have ['BRONCHITIS', 'FLU', 'VIH']". Below this, there is a section for selecting symptoms from a list. The checked symptoms are: "Chest discomfort", "Production of mucus (sputum)", "Fatigue,Shortness of breath", and "Slight fever and chills". Other options like "Cough", "unintentional weight loss", "joint pain", "enlarged glands", "sweats, particularly at night", and "enlarged glands" are also listed but not checked. A "Submit the existed special symptoms" button is located at the bottom of this section.

## Photo Input:



## Final result and suggestions:

**Based on the more detailed symptoms you provided,  
the disease you are most likely to have is Bronchitis**

Possible symptoms:

Cough, Production of mucus (sputum),Fatigue,Shortness of breath,Slight fever and chills,Chest discomfort

More suggestions can be found here:

[More details in knowledge and treatments](#)

**Show the image and CV result**



**Based on the image you provided,  
the disease you are most likely to have is Melanoma**

Don't stress out but consider seeing your doctor and following diagnosis steps:

1. Skin cancer screening: Ask your doctor whether you should consider periodic screening for skin cancer.
2. Biopsy: Punch biopsy, excisional biopsy or incisional biopsy.
3. Thickness and spreading: After a diagnosis, the next step is to determine the extent (stage) of the cancer.  
To assign a stage, your doctor will determine the thickness and see if the melanoma has spread.