Resume Classification System

User Guide

Requirements:

System overview

This system is designed to simplify job searching for users by analyzing their resumes and classifying suitable job roles using machine learning. Also, the system can extract personal information like names and emails from resumes. The frontend is built using React for a smooth user experience, while the backend uses Flask to handle data processing and communication with the classification model. The KNN algorithm, known for its effectiveness in pattern recognition, is employed to match users' skills and experiences with potential job roles.

Frontend & Backend Applications

Our frontend is developed with the React framework. It uses APIs to communicate with backend which developed with Flask. The resume files will be sent from frontend to backend. And the results will return to the frontend application in JSON format.

Deployment

Our System is deployed in Windows 11. To run the system's backend, you will need to have a working Python installation with the necessary libraries installed:

- Flask
- Flask-Cors
- Pypdf
- Numpy
- Panda
- Nltk
- Scikit-learn
- Python-docx

To install the libraries above, key in the command "pip install <library's name>".

When the first time installing the backend application, you need to download relevant nltk resources:

- names
- words
- stopwords
- punkt_tab
- averaged_perceptron_tagger_eng
- maxent_ne_chunker_tab

To download the resources above, key in the command "python" to open python shell.
In python shell, key in the command "import nltk".
Then key in the command "nltk.download(<resource's name>)"

After all resources are downloaded, key in the command “exit()” to exit the Python shell.

To run the backend, simply open a terminal, enter:

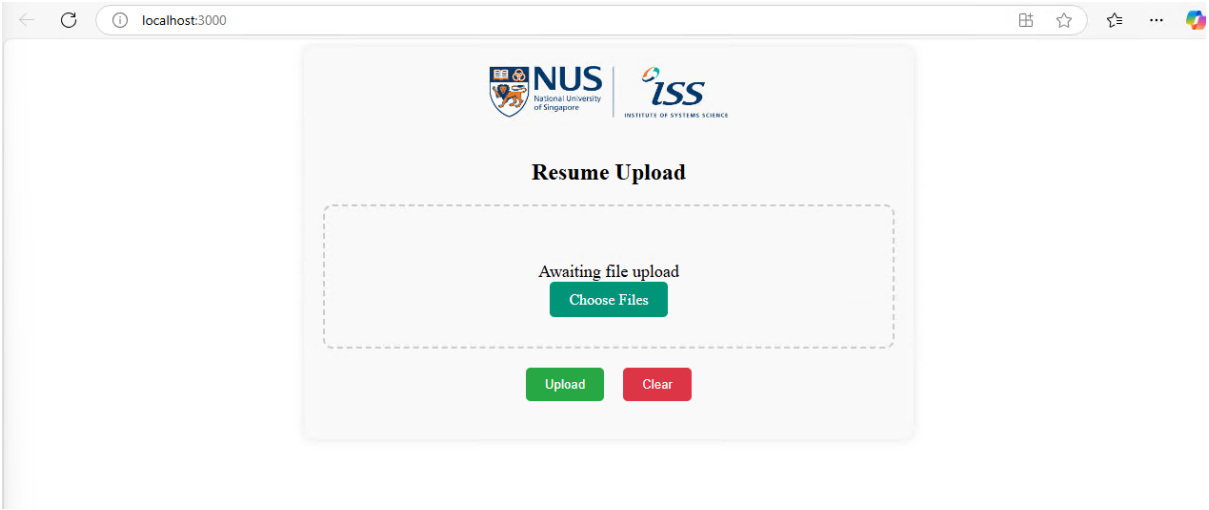
- cd <path of the system>/Resume-Classification-System/SystemCode/backend
- python main.py

Next, you need to run the frontend application. It needs Node.js installation. After installing Node.js, open a new terminal, enter:

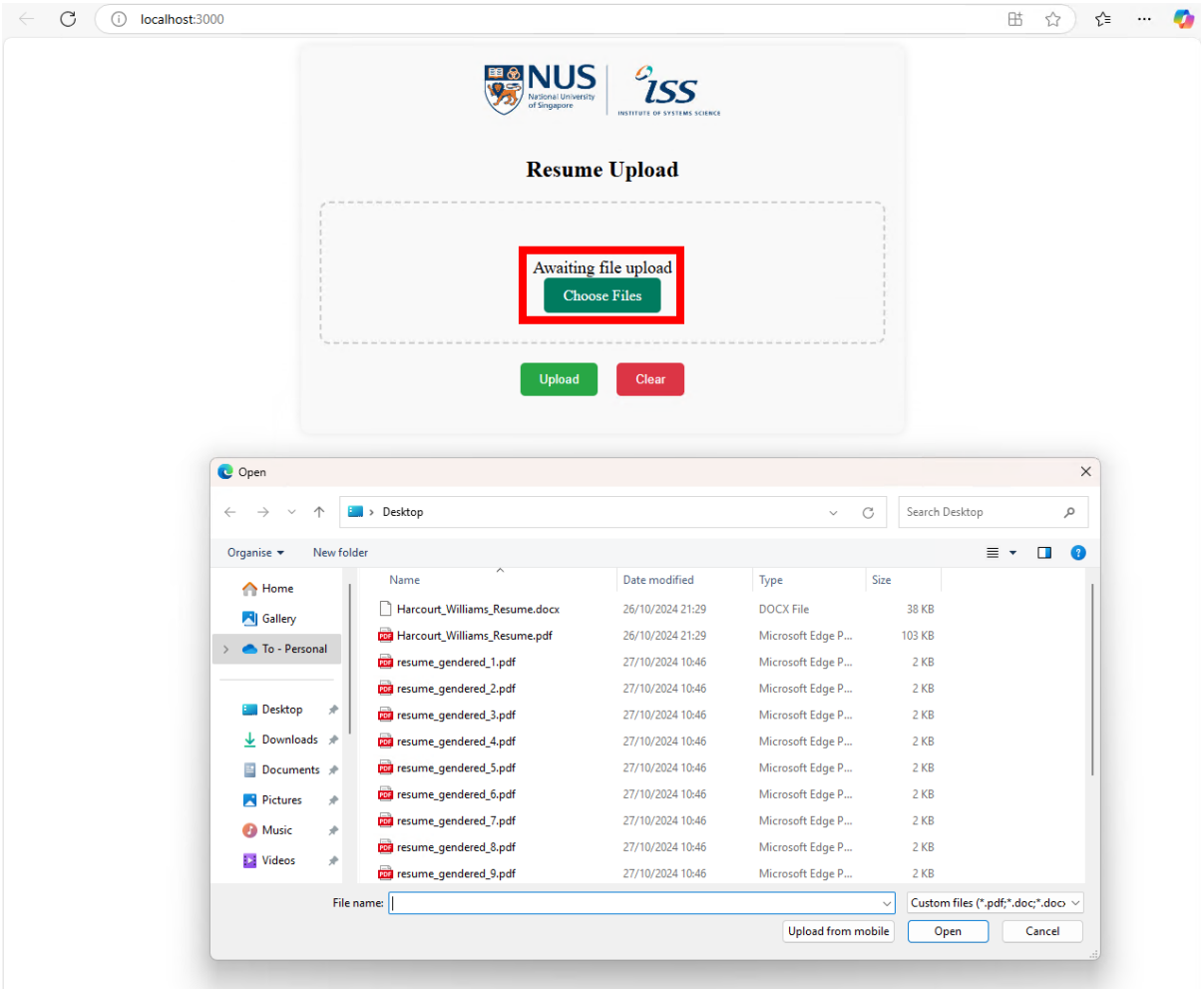
- cd <path of the system>/Resume-Classification-System/SystemCode/frontend
- npm install
- npm start

Start

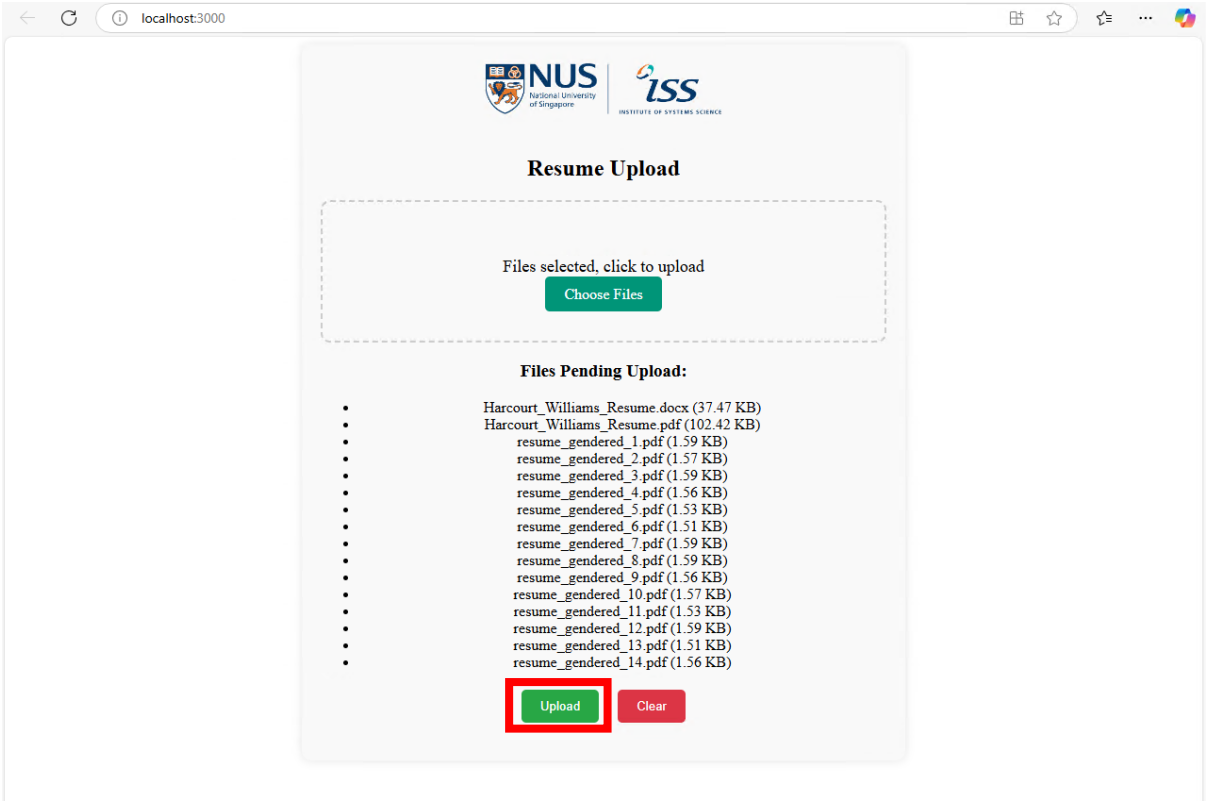
Open your browser and go to http://127.0.0.1:3000/.
This is the home page of the system. It provides functionality of resume uploading. You can simply upload your resume here. Our system supports .pdf and .docx.



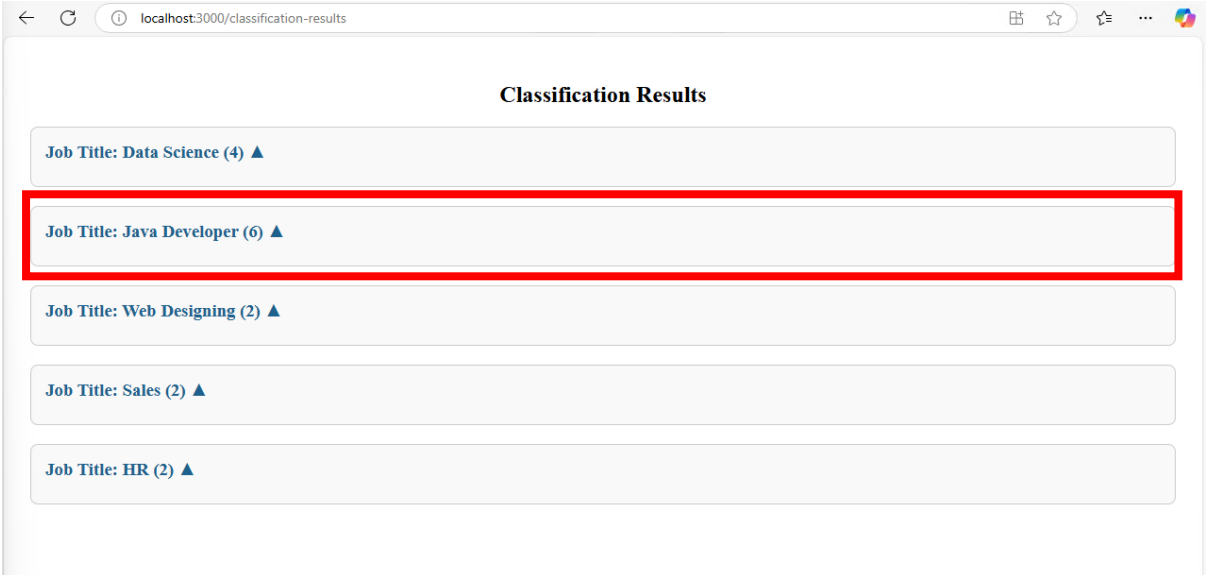
You can select one or more files to upload your resume after clicking “Choose Files” Button.



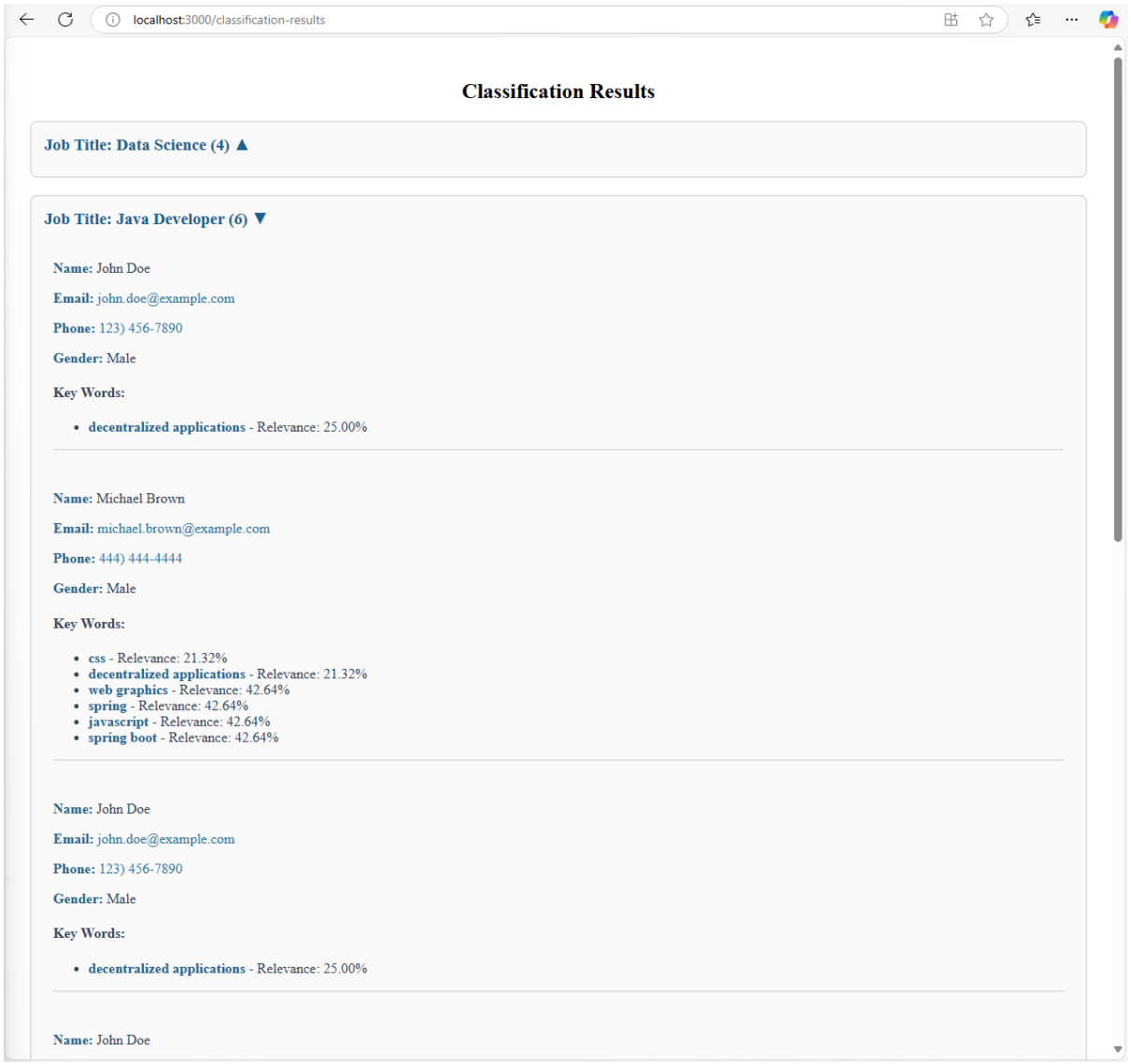
Then you can click “Upload” button to upload chosen resumes. Also, you can click “Clear” button to remove and re-select files.



When classification is completed, you will be redirected to the result page. In this page, the classification results are group by the most suitable job titles based on the content of each resume. You can click job title cards to see details.



In the expanded job title list, you can view the information extracted from resume files. The information includes name, email, phone number, gender and keywords of each resume.


localhost:3000/classification-results
Classification Results
Job Title: Data Science (4) ▲
Job Title: Java Developer (6) ▼
Name: John Doe
Email: john.doe@example.com
Phone: 123) 456-7890
Gender: Male
Key Words:
decentralized applications - Relevance: 25.00%
Name: Michael Brown
Email: michael.brown@example.com
Phone: 444) 444-4444
Gender: Male
Key Words:
css - Relevance: 21.32%
decentralized applications - Relevance: 21.32%
web graphics - Relevance: 42.64%
spring - Relevance: 42.64%
javascript - Relevance: 42.64%
spring boot - Relevance: 42.64%
Name: John Doe
Email: john.doe@example.com
Phone: 123) 456-7890
Gender: Male
Key Words:
decentralized applications - Relevance: 25.00%
Name: John Doe