



TURKISH AIRLINES FLIGHT MENU WEB APPLICATION



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Turkish Airlines Flight Menu Web Application

1. Overview

The **Turkish Airlines Flight Menu Application** is a web-based tool designed to digitize, translate, and process flight menus. This application leverages Optical Character Recognition (OCR) to extract text from uploaded menu images, enabling language translation and user interaction through a dashboard interface. The **Turkish Airlines Flight Menu Web Application** is built using the **Next.js full-stack framework** to deliver a responsive, server-rendered, and API-driven solution. The architecture consists of the following key layers:

2. Application Architecture

The application follows a **modern web application architecture** comprising:


Frontend

- **Framework:** React.js with Next.js
- **Styling: Chakra UI and Material UI:** Component libraries for reusable and accessible UI components.
- Image upload, file processing, and dynamic rendering leverage React libraries like **react-dropzone**.
- **Tailwind CSS:** Utility-first CSS for rapid UI development.
- **State Management:** React hooks (useState, use Effect)
- **Components:**

- Home Screen: <http://localhost:3000/> Page meets the users at first.
- **File Upload:** Drag-and-drop area for uploading images.
- **OCR Execution:** Button to trigger text extraction.
- **Language Selection:** Dropdown to choose target languages for translation.
- **Menu Items Display:** List of extracted and translated menu items with remove options.
- **Chat Response:** Section to input and process user queries.
- **Dashboard:** Displays metrics like the total uploaded images and processed menus.

≡ Turkish Airlines Dashboard

☐ Dark Mode



Turkish Airlines Flight Menu Application

Drag & Drop an image file here, or click to select a file.

UPLOAD AND RUN OCR

Select Language:

English

TRANSLATE MENU

DASHBOARD

UPLOADED IMAGE

OCR RESULT

MENU ITEMS

CHAT RESPONSE

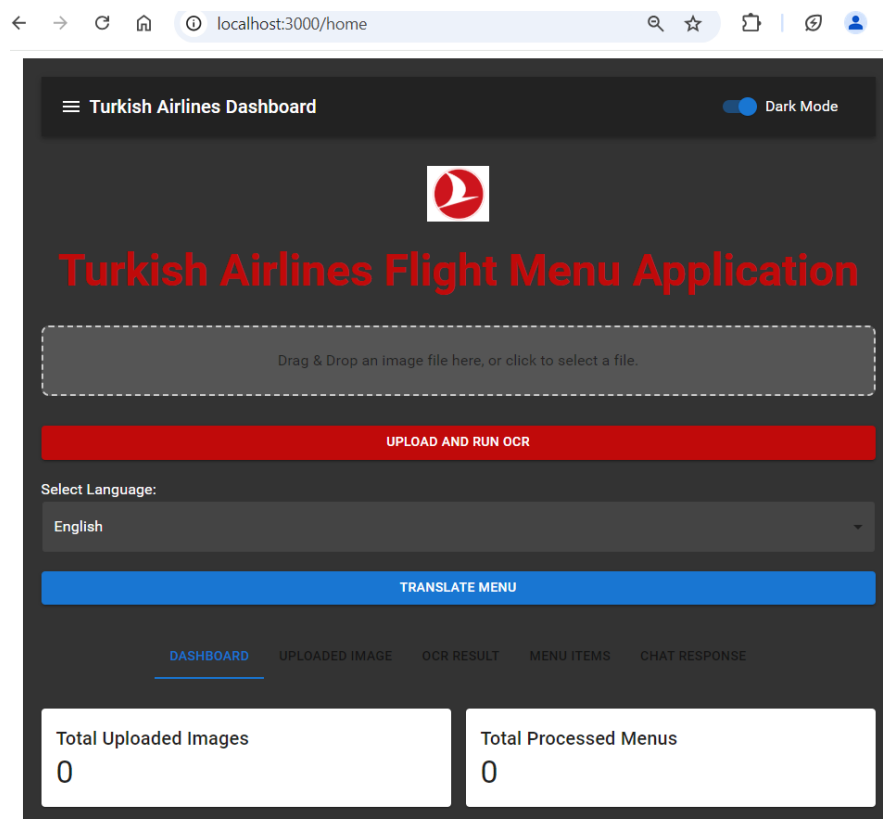
Total Uploaded Images

0

Total Processed Menus

0

- **Dark Mode:** A toggle for switching between light and dark themes.



Backend

- Custom **API routes** in the Next.js pages/api/ folder handle OCR processing, text translation, and document parsing.

Image and Text Processing

- **OCR:** Image-to-text extraction is implemented using Tesseract.js and Sharp for preprocessing.
- **Translation:** Multilingual text processing uses Google Translate API (google-translate-api-x).
- **OCR Service:** Tesseract.js (JavaScript OCR library for text extraction).
- **Translation API:** Google Translate API -x.

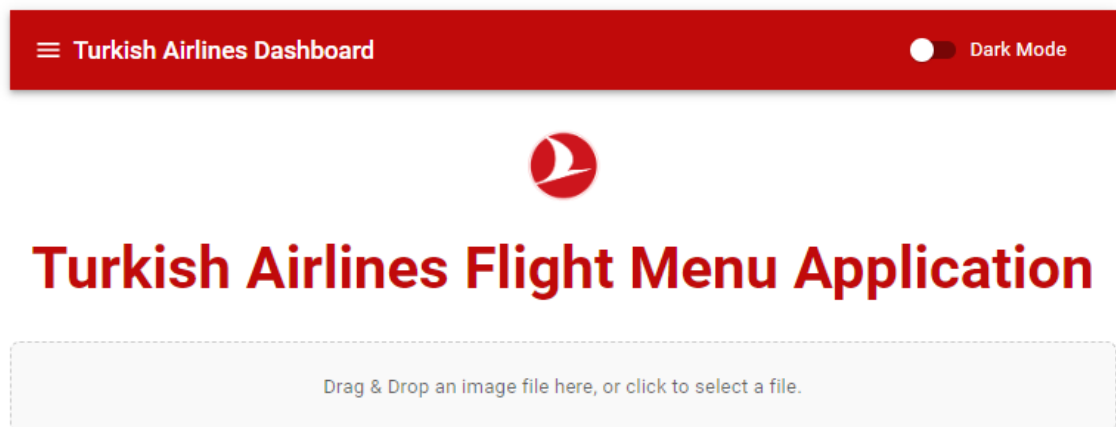
- **Endpoints:**

- /home – Navigates the dashboard page
- api/translate - Translates extracted text into the selected language.
- api/chat - Handles user queries related to the menu items.

3. Key Features

1. Image Upload

- Users can drag and drop an image file or select one from their local system.
- Supported file formats: PNG, JPEG, JPG.



2. OCR Text Extraction

- The application uses Tesseract.js to extract text from the uploaded image.
- The extracted text is displayed in the "OCR Result" section.



Turkish Airlines Flight Menu Application

Drag & Drop an image file here, or click to select a file.

Selected File: example_menu.png

UPLOAD AND RUN OCR

Select Language:

English

TRANSLATE MENU

DASHBOARD

UPLOADED IMAGE

OCR RESULT

MENU ITEMS

CHAT RESPONSE

OCR Result:

Search in OCR results

EXPORT
JSON

KARIDESLI SEBZE SALATASI VEGETABLE SALAD WITH MARINATED SHRIMP

REMOVE

MUTEBBEL MOUTABEL

REMOVE

IZGARA TAVUK GÖĞÜS GRILLED CHICKEN BREAST

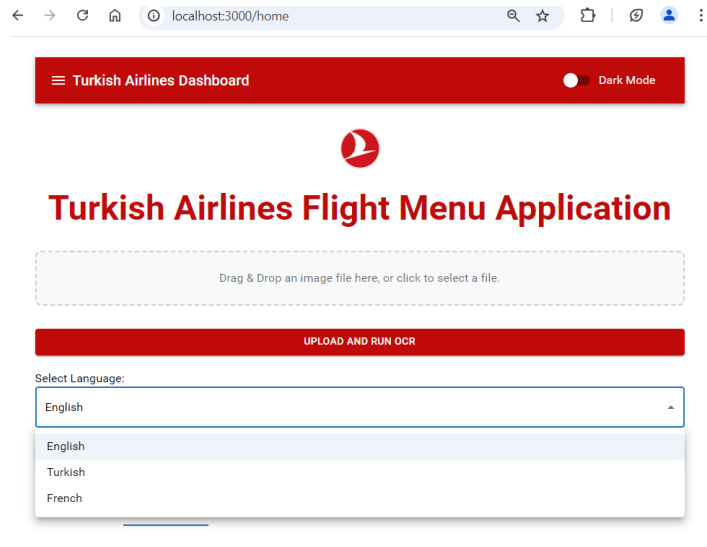
REMOVE

DOMATES SOSLU PENNE MAKARNA PENNE WITH TOMATO SAUCE

REMOVE

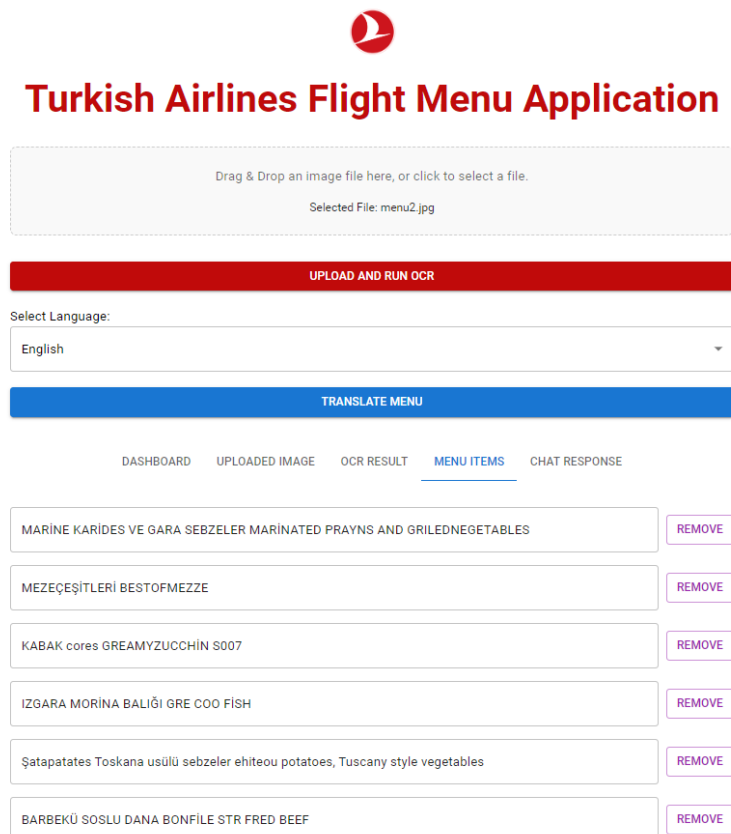
3. Translation

- Users can select a language (e.g., English, Turkish) from a dropdown menu.
- Extracted text is translated using a translation API and displayed under "Menu Items."



4. Menu Management

- Users can remove unwanted menu items using the "REMOVE" button.
- A real-time list of translated items is maintained.
- Arranging is available - users can edit the card area in menu items.




5. Dashboard

- Displays statistics:
 - **Total Uploaded Images:** Number of images uploaded.
 - **Total Processed Menus:** Number of successfully processed and translated menus.

6. Chat Response

- Users can interact with the system by asking questions about the menu.
- A simple chatbot processes the query and responds based on the menu data.



Turkish Airlines Flight Menu Application

Drag & Drop an image file here, or click to select a file.

Selected File: menu2.jpg

UPLOAD AND RUN OCR

Select Language:
English

TRANSLATE MENU

[DASHBOARD](#) [UPLOADED IMAGE](#) [OCR RESULT](#) [MENU ITEMS](#) [CHAT RESPONSE](#)

Ask a question

KARİDES

SUBMIT QUERY

Result 1

Menu Item

MARİNE KARİDES VE GARA SEBZELER MARİNATED PRAYNS AND GRILEDNEGETABLES

7. Dark Mode

- Toggle button to switch between light and dark themes for improved user experience.

4. Libraries and Tools Used

Features	Description	Libraries and Tools
Frontend Framework	React components with Next.js for routing, SSR, and performance optimization.	React components with Next.js for routing, SSR, and performance optimization.
UI Styling	Combines Tailwind CSS, Chakra UI, and Material UI for modern interfaces.	tailwindcss, @chakra-ui/react, @mui/*
Image Upload	Supports image uploads for menu processing.	react-dropzone, formidable
OCR Processing	Extracts text from uploaded images.	tesseract.js, sharp
Translation	Translates extracted menu text into multiple languages.	@google-cloud/translate, google-translate-api-x
Document Parsing	Integrates Google Document AI for structured document analysis.	@google-cloud/documentai
File Handling	Utilities for file and directory operations.	fs-extra
Language Detection	Detects user input language.	langdetect
Deployment	Vercel	Hosting the frontend/backend

5. Setup Instructions

Follow the steps below to set up the application on your local machine:

Prerequisites

- Node.js (v14 or above)
- Google Cloud (OCR and Translation) NPM or Yarn package manager

Step 1: Clone the Repository

- Clone the repository using Git:
- `git clone https://github.com/Busraakgul/flight-menu-app.git`
- `cd flight-menu-app`

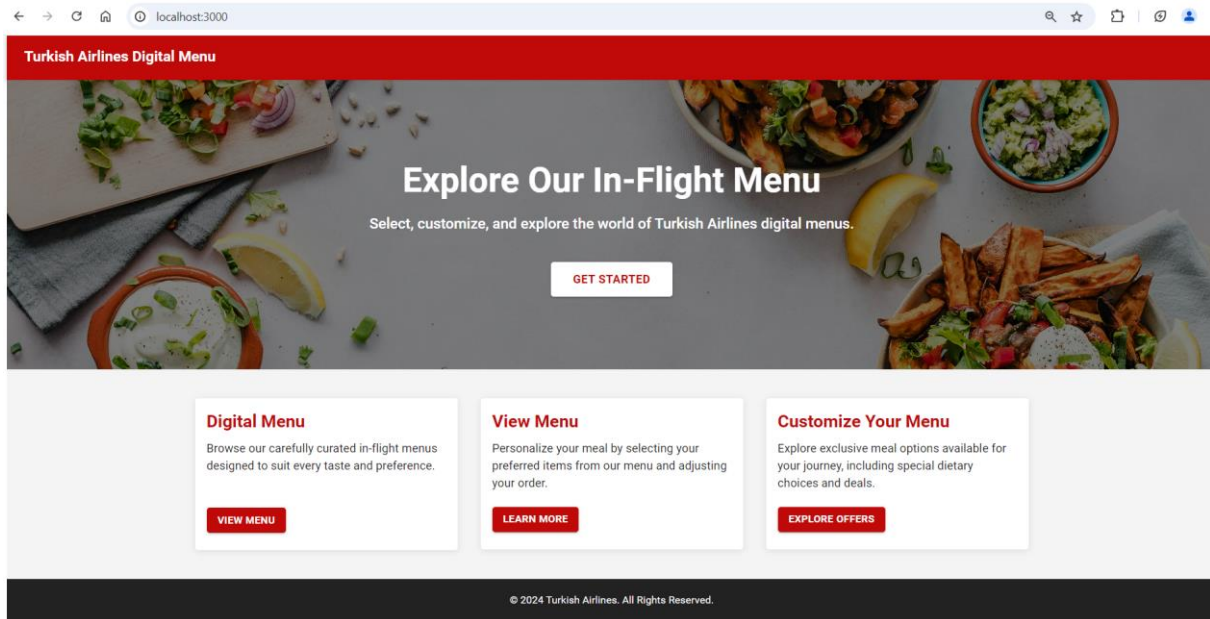
Step 2: Install Dependencies

- Install the necessary Node.js packages:
- `npm install` # OR `yarn install`

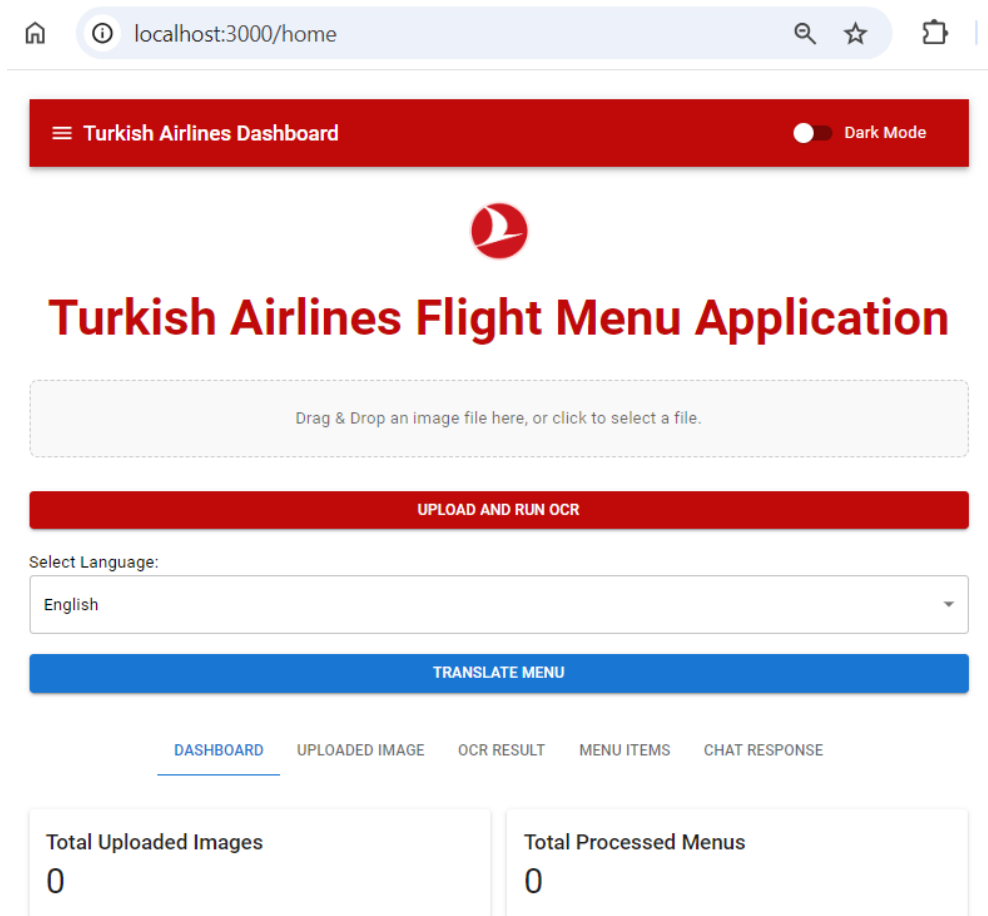
Step 3: Run the Application

- Start the development server with the following command:
- `npm run dev` # OR `yarn dev`
- Access the app at `http://localhost:3000`.

The application will run at <http://localhost:3000/> Page



Then navigate with the button to <http://localhost:3000/home>



Step 4: Build and Deploy

- To create a production build:
 - `npm run build`
 - `npm start`

Connect Frontend and Backend

- Update the frontend API calls (e.g., `/home`, `/translate/`, `/chat`) to point to the backend server.

6. Usage Guide

1. Upload an Image:

- Drag and drop an image file into the upload area or click to browse.

2. Run OCR:

- Click the **"UPLOAD AND RUN OCR"** button to extract text from the image.

3. Translate Menu:

- Select a target language from the dropdown menu.
- Click **"TRANSLATE MENU"** to view translated items.

4. Manage Menu Items:

- Review the translated items under the **"MENU ITEMS"** tab.
- Use the **REMOVE** button to delete any unwanted items.

5. Chat Response:

- Switch to the "**CHAT RESPONSE**" tab.
- Ask questions related to the menu, such as:
 - KARİDES, SHRIMP

6. Dashboard:

- View metrics such as **Total Uploaded Images** and **Total Processed Menus**.

7. Dark Mode:

- Toggle the "**Dark Mode**" switch to change the theme.

7. Additional Notes

- **Error Handling:** The app includes error handling for image upload failures and missing API configurations.
- **Performance Optimization:** Images are preprocessed using sharp to enhance OCR accuracy.
- **Security:** Sensitive API keys are securely managed using .env files.

8. Conclusion

The **Turkish Airlines Flight Menu Application** streamlines the digitization and translation of flight menus, improving accessibility for international users. With features like OCR, translation, and chatbot interaction, it enhances the overall user experience for airline staff and passengers.