Team

# CtrlAltElite

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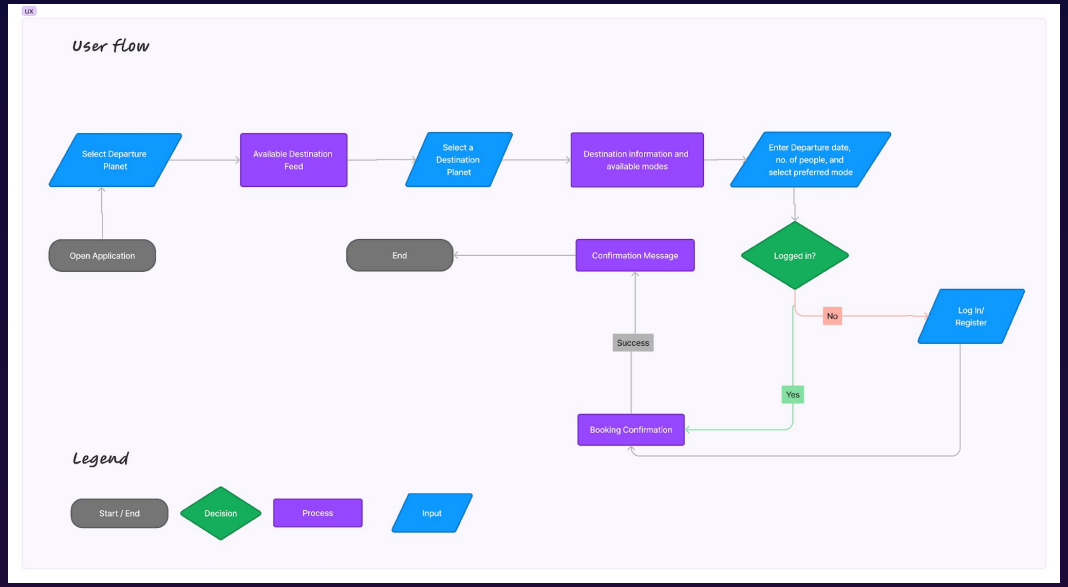
Presenting:
Project-Intergalactic

UX Design Phase

# UX

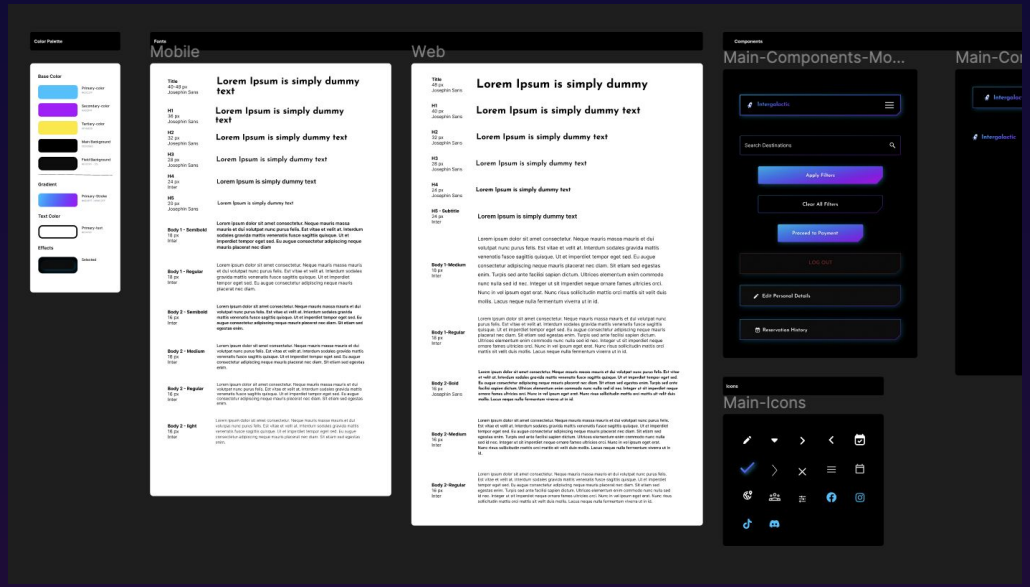
## Crafting an Experience That Convert 🧠




Style Guide

# UI

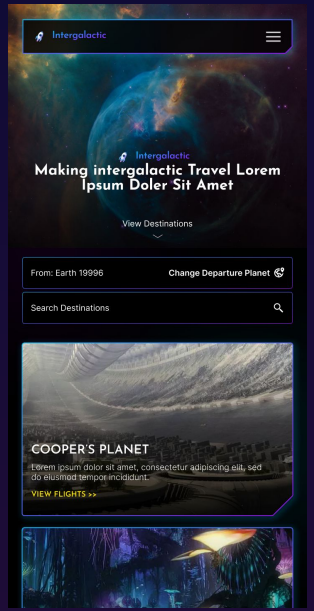
## Designing an Interface That Captivate 💎

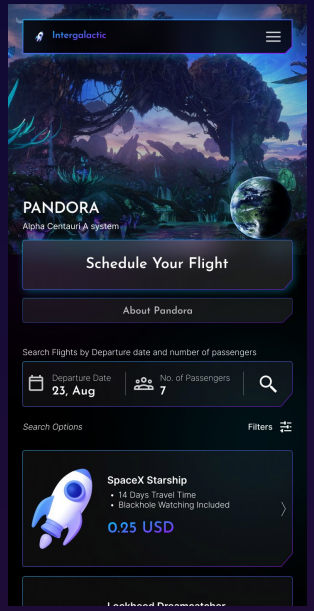


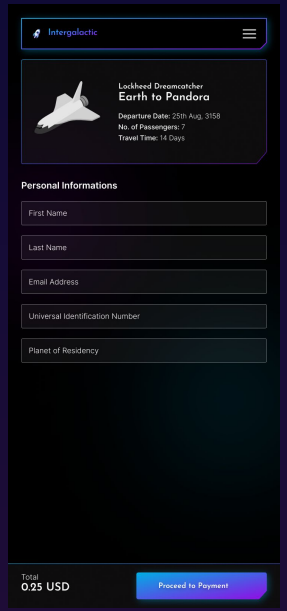
High-fidelity UI

# UI

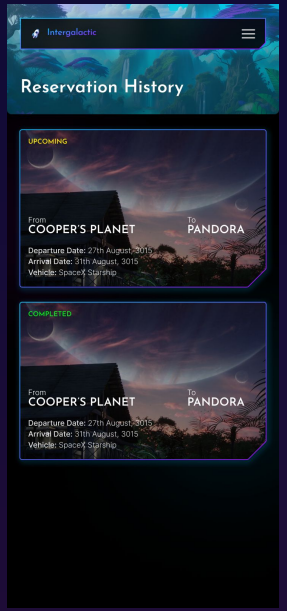
## Designing an Interface That Captivate 💎







Technologies Used

# Develop

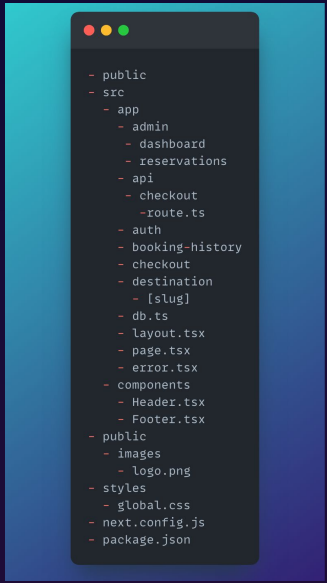
Infusing Life into Design 👩‍💻



App. Architecture

# Develop

## Infusing Life into Design 👩‍💻




Next.JS app router based folder structure (modular approach:) 📂🔗

It is intended to take a modular approach at storing interfaces, stylesheets, SEO metadata generation per path within the path itself which could be identified as modules.

However, these folders within the app folder also account for automated route handling within the app router including the api folder for APIs and other custom folders as pathnames.

Development Phase

# Develop

## Infusing Life into Design 👩‍💻

What we did in giving life to the design! (development) 🎨✨

- Initiating a Next.JS app router based app with Typescript and Tailwind CSS in a Git repository
- Creating the frontend pages and appropriate components with static data arrays
- MongoDB configuration and initiation with mongoose
- Creating the API endpoints and integrating the pages with them to handle CRUD operations

Current Milestones! 😉🏆

- Frontend Development
- Database Integration
- APIs Development
- Authentication & Session Handling
- Error Handling
- CD to Vercel via Github

Limitations & Future

# Develop

## Infusing Life into Design 👩‍💻

### Limitations and areas to improve 🛑🔍

- Some libraries (e.x. mongoose) aren't fully supported with Next.JS app router yet
- Development of the admin management functionalities
- QA process to identify & fix bugs and unhandled exceptions
- Code optimisation and further reduce code repetition
- Implementing accessibility features like filtering, sorting to improve UX

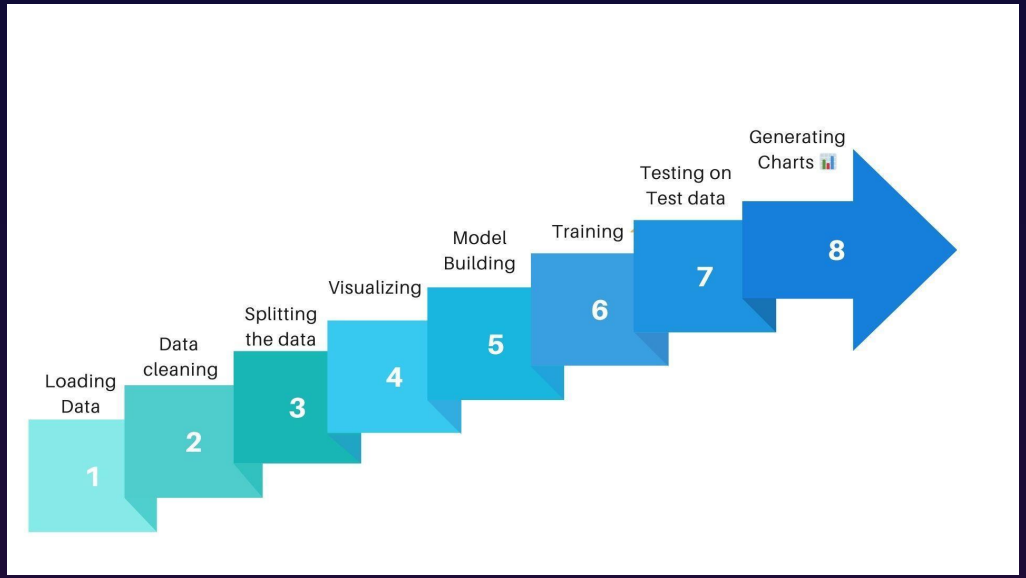
### Future improvements! 📈🎯

- Improve authentication and session handling methods
- Enabling Google, Facebook, and other 3rd party sign one-click authentication
- Improve user flow by allowing them to enter additional information, place and manage multiple reservations, and improving filtering and search functionalities.

Datathon Workflow

# AI & ML

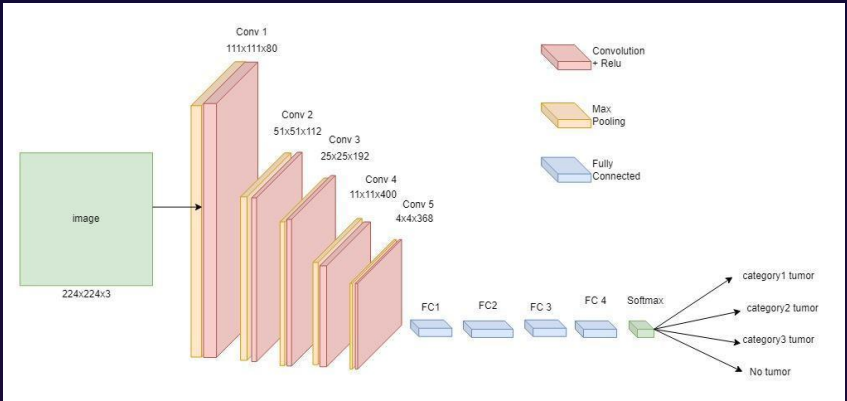
## Cracking the Possibilities 📊🧠

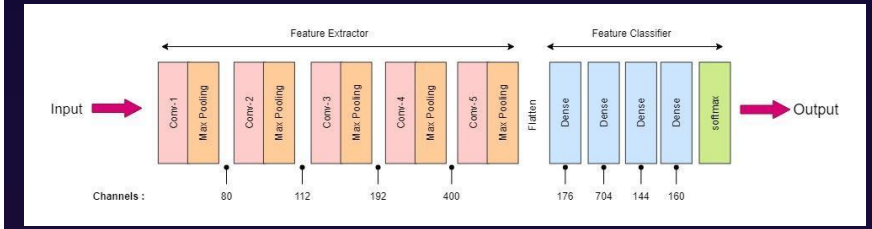


Model Architecture

# AI & ML

## Cracking the Possibilities 📊🧠

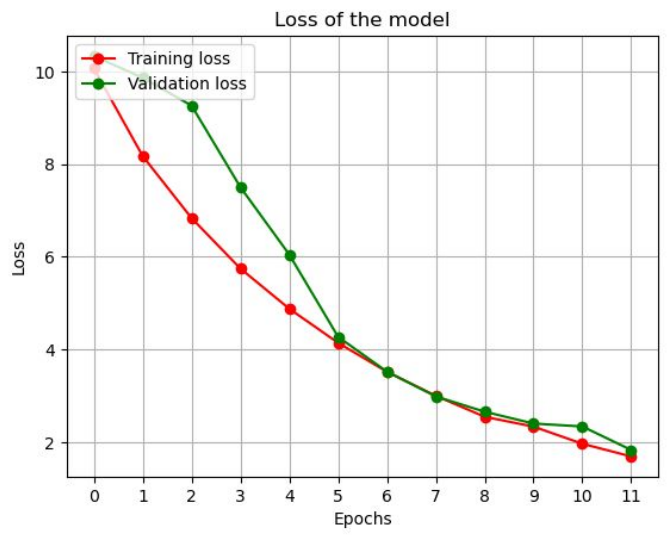


Accuracy / Loss

# AI & ML

## Cracking the Possibilities 📊🧠

Classification Rep.

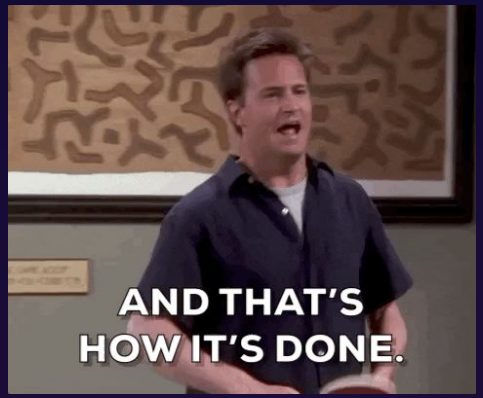
# AI & ML

## Cracking the Possibilities 📊🧠

We were able to achieve a 0.90 accuracy 📈🎯

```
print(classification_report(y_true_test,  y_pred))
```

| | precision | recall | f1-score | support |
|---|---|---|---|---|
| 0 | 0.93 | 0.82 | 0.87 | 186 |
| 1 | 0.78 | 0.93 | 0.85 | 185 |
| 2 | 0.99 | 0.95 | 0.97 | 167 |
| 3 | 0.95 | 0.90 | 0.92 | 107 |
| accuracy | | | 0.90 | 645 |
| macro avg | 0.91 | 0.90 | 0.90 | 645 |
| weighted avg | 0.91 | 0.90 | 0.90 | 645 |



Challenges Faced

# AI & ML

## Cracking the Possibilities 📊🧠

- Limited computational resources in local devices made us limited to the resources available in Google Colab free plan
- The Dataset exhibited notable class imbalances, scarcity of images associated with the 'No tumor' condition
- Finding the optimal combination of hyper-parameters was challenging and required some experimentation
- In the initial approach our model suffered with overfitting. Therefore, we had to implement various techniques to reduce overfitting such as L2 regularisation, Dropout layers & Batch normalisation etc
- Medical images have specific properties that differ from natural images. Therefore, applying generic augmentations wasn't suitable. For this advanced domain expertise in specialised augmentation techniques were required

# Thank You!

For Diving into What We Crafted 🚀

# Q&A