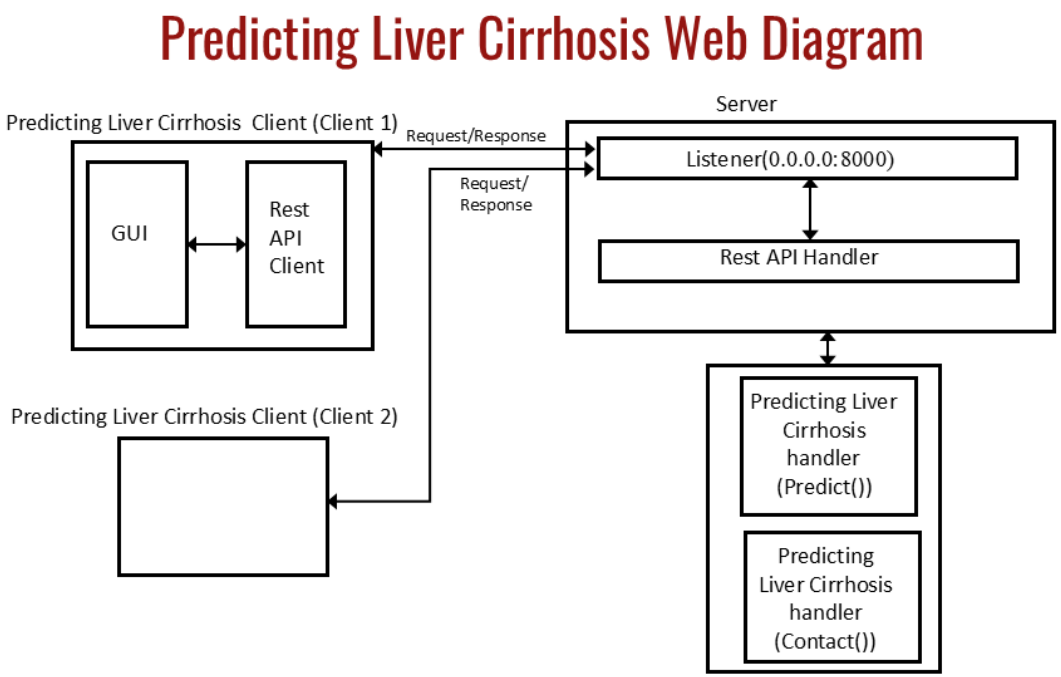
Project Design Phase-II
Data Flow Diagram & User Stories

Date	16 June 2025
Team ID	LTVIP2025TMID35624
Project Name	Revolutionizing Liver Care: Predicting Liver Cirrhosis Using Advanced Machine Learning Techniques
Maximum Marks	4 Marks

Data Flow Diagrams:

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



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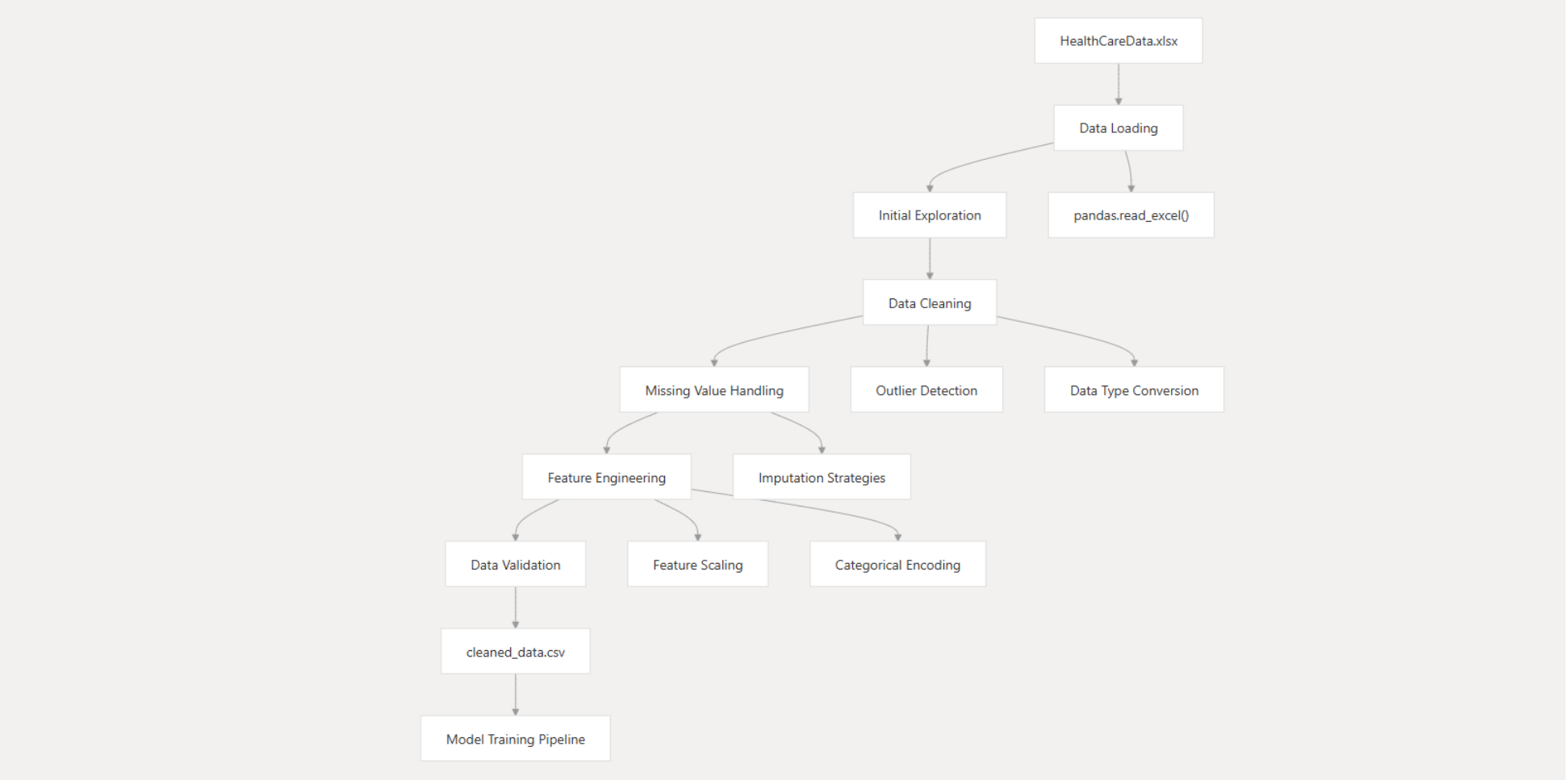
Data Pipeline and Processing

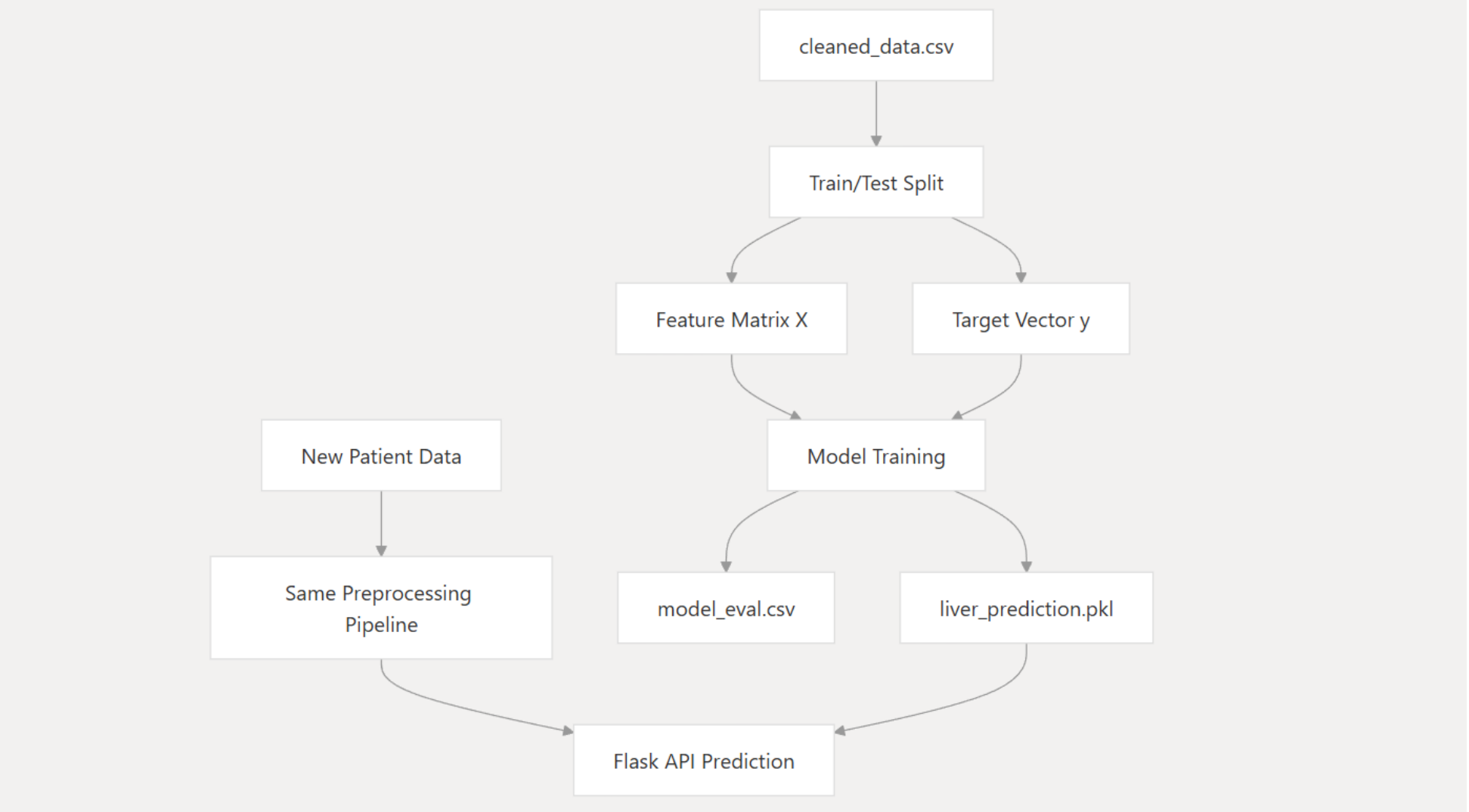
The data pipeline and processing components responsible for transforming raw healthcare data into clean, model-ready datasets for liver cirrhosis prediction. The pipeline handles data ingestion, cleaning, preprocessing, feature engineering, and validation to prepare data for machine learning model training and inference.

Overview and Data Flow

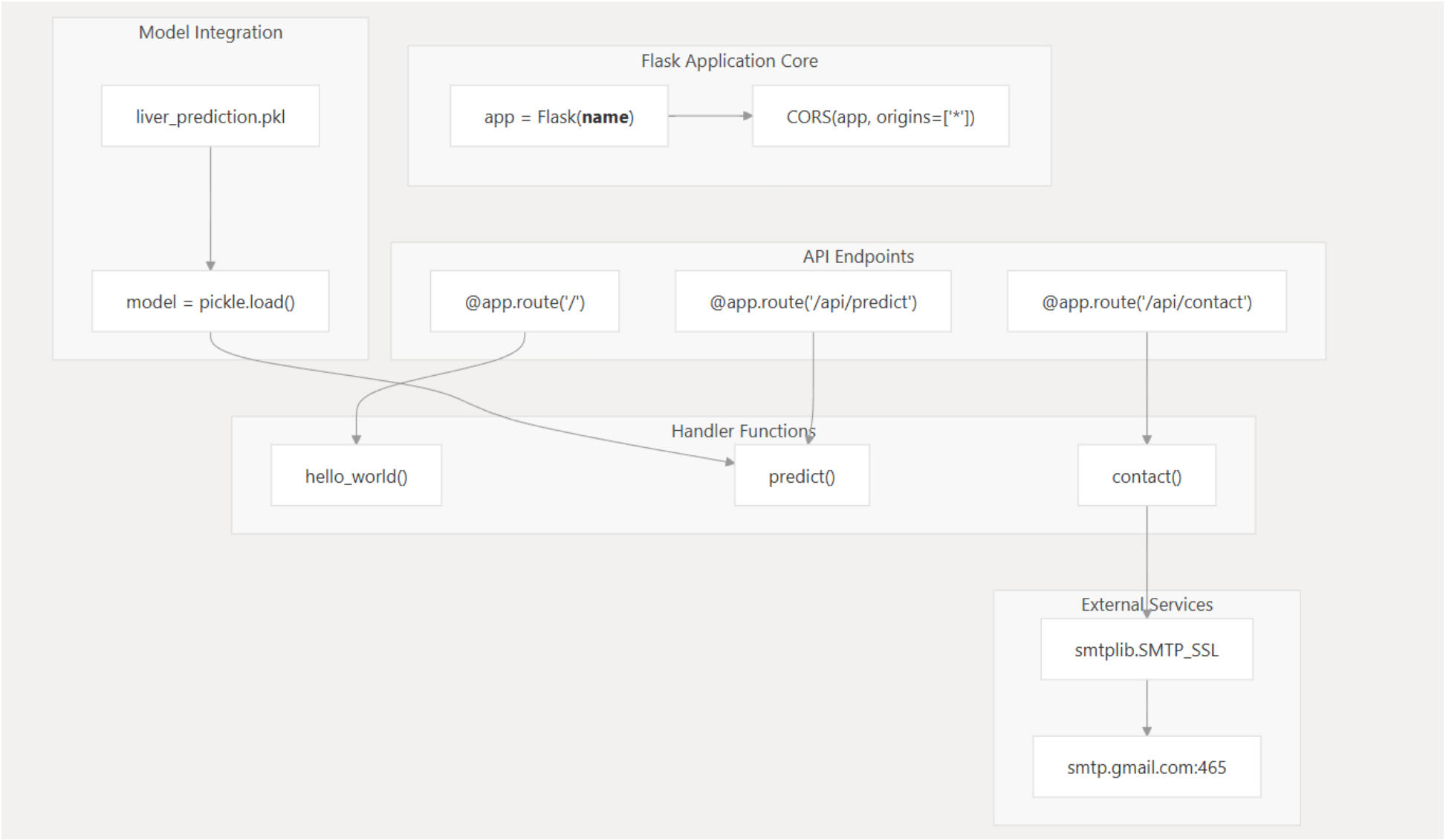
The data pipeline transforms raw healthcare data through multiple processing stages to create clean, standardized datasets suitable for machine learning algorithms. The pipeline processes patient demographic information, medical history, laboratory test results, and clinical measurements to predict liver cirrhosis occurrence.



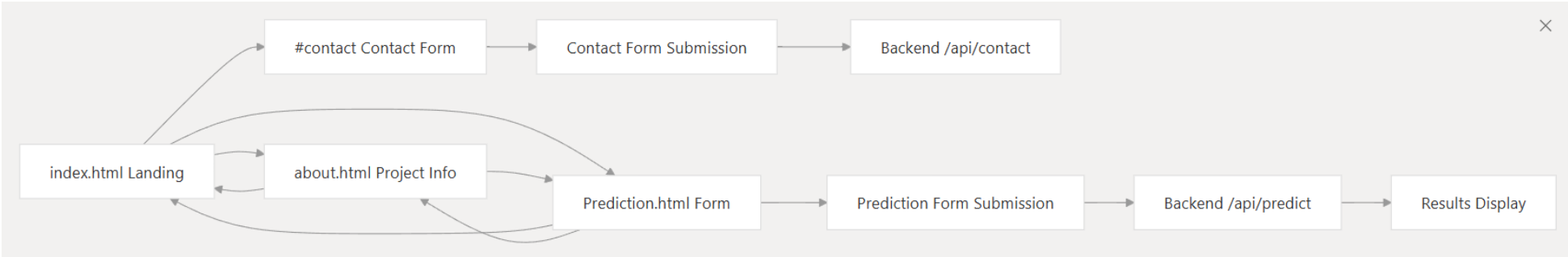
Integration with Machine Learning Pipeline



Backend Application Architecture


Model Integration
liver_prediction.pkl
model = pickle.load()
Flask Application Core
app = Flask(name)
CORS(app, origins=['*'])
API Endpoints
@app.route('/')
@app.route('/api/predict')
@app.route('/api/contact')
Handler Functions
hello_world()
predict()
contact()
External Services
smtplib.SMTP_SSL
smtp.gmail.com:465

User Flow



User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Developer	Data Collection & Preprocessing	USN-1	As a developer, I want to understand and clean the dataset, and handle missing values	Dataset is clean, missing values handled, and ready for analysis	High	Sprint-1
Developer	Feature Engineering	USN-2	As a developer, I want to perform EDA, encoding of categorical features, and feature creation	Features are encoded and created for model input	High	Sprint-2
Developer	Model Development	USN-3	As a developer, I want to train the model, tune hyperparameters, and evaluate its performance	Best model is selected and evaluated with metrics like accuracy, F1-score	High	Sprint-3
Developer	Model Deployment	USN-4	As a developer, I want to create a Flask API and build a frontend UI using HTML/CSS/JS	UI is responsive and backend API returns correct predictions	High	Sprint-4
Developer	Testing & Final Deployment	USN-5	As a developer, I want to test the entire system, deploy to cloud, and document the process	Model runs end-to-end on cloud with working UI and complete documentation	High	Sprint-5

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