AI DEPLOYMENT FOR ECG HEARBEAT ANALYSIS

MIT AND PTB-XL DATASETS

EDA PROCESS

WINDOWING, NORMALIZATION, SEGMENTATION → FEATURE ENGINEERING → RESAMPLING AND TRAIN/VALIDATION SPLIT

CNN model

Preprocessed data

TRAINING AND EVALUATING MODLES ON TRAINING AND VALIDATION SETS

LOADING THE TEST SETS FOR MIT AND PTB-XL

PREDICTIONS ON TEST DATSETS

Deplyment:
the final model is deployed in a production environment

User Deployment Method:
- **API:** The deployed model is accessed via an API, allowing seamless integration with other systems.
- **Monitoring:** Continuous monitoring of model performance and data quality ensures reliability.
- **Feedback Loop:** User feedback and new data are used to continuously improve the model.
▸ **Results Delivery:**
- **Mobile Application:** Integration with a mobile app allows users to perform real-time ECG analysis on their smartphones.
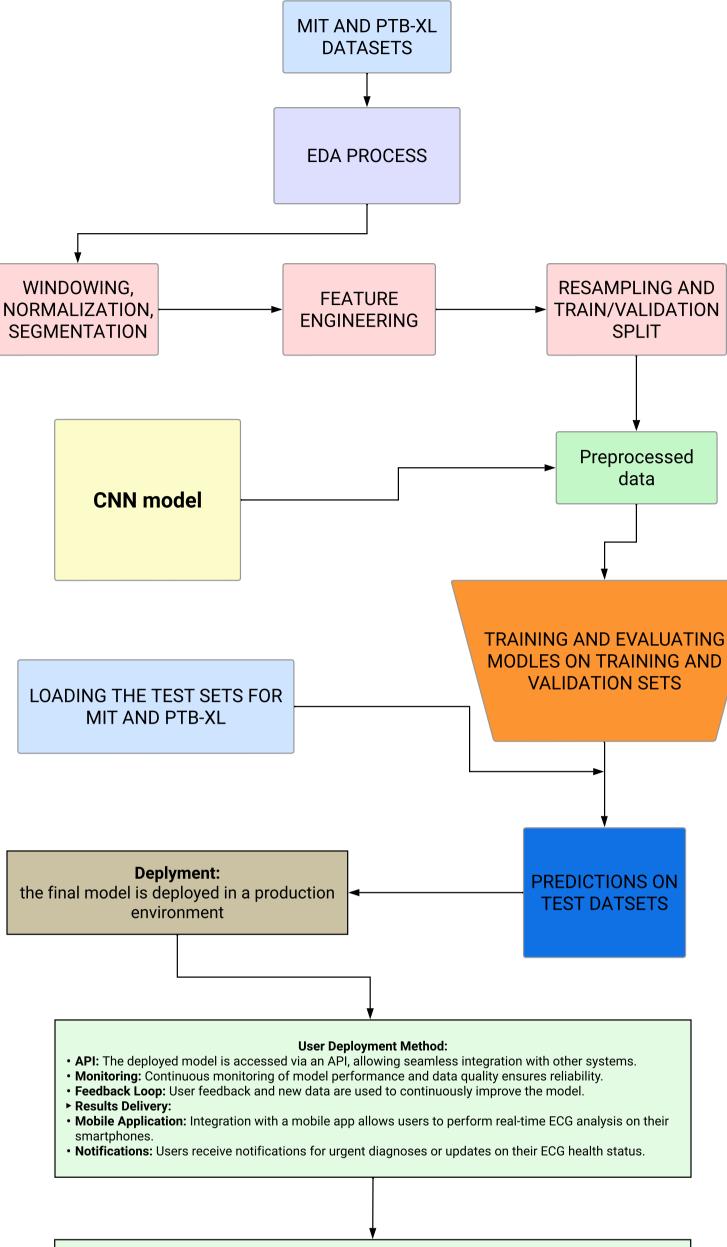- **Notifications:** Users receive notifications for urgent diagnoses or updates on their ECG health status.

Hospital Deployment Method:
- **Integration with Hospital Information Systems (HIS):**
- **Electronic Health Records (EHR):** Integrate the ECG diagnosis neural network with the hospital's EHR system to seamlessly incorporate ECG data and diagnosis results into patient records.
- **DICOM Compatibility:** Ensure compatibility with DICOM (Digital Imaging and Communications in Medicine) standards for medical imaging, allowing ECG data and diagnostic reports to be stored and accessed alongside other medical images.
- **Alerts and Notifications:** Configure the system to generate alerts and notifications for abnormal ECG findings, prompting timely intervention by medical staff.
- **Training and Support:**
- **Compliance and Security:**
- **Access Control:** Implement robust access control measures to restrict access to sensitive ECG data and diagnosis results, ensuring that only authorized personnel can view or modify patient information.
- **Quality Assurance and Continuous Improvement:**
- **Quality Assurance Processes:** Establish quality assurance processes to regularly monitor and evaluate the accuracy and reliability of the ECG diagnosis system in a hospital setting.
- **Feedback Mechanism:** Solicit feedback from healthcare professionals to identify areas for improvement and refine the system's algorithms and user interface accordingly.