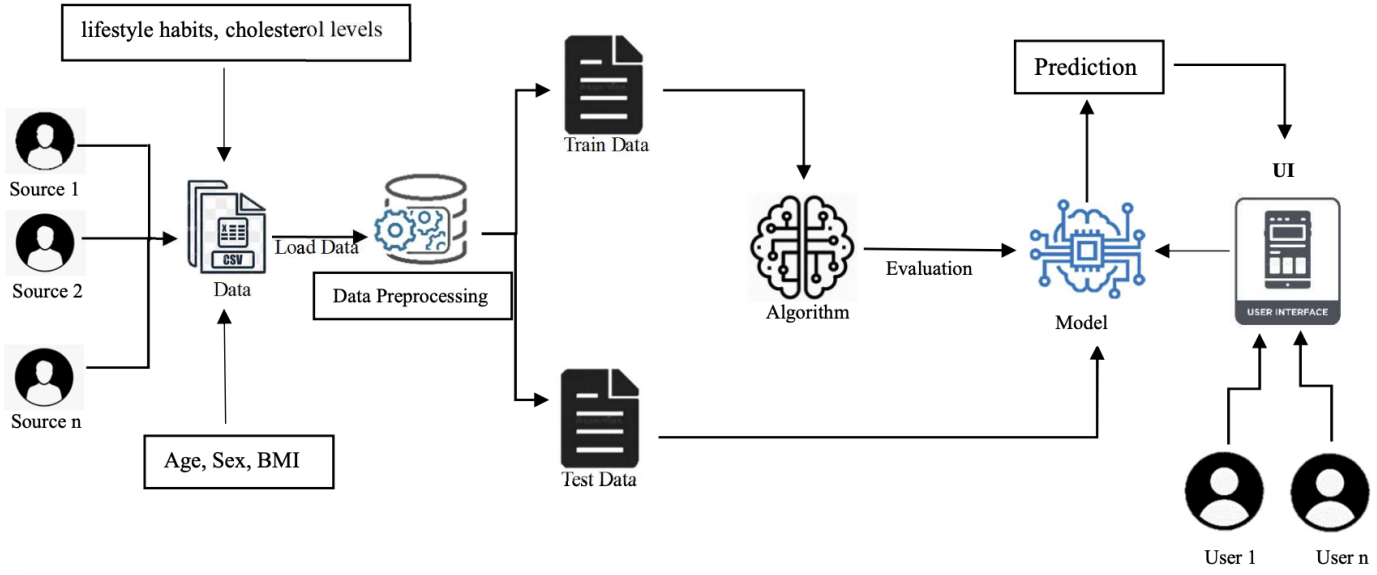
Project Design Phase-II
Data Flow Diagram & User Stories

Date	03 November 2023
Team ID	592095
Project Name	Project - Image Caption Generation
Maximum Marks	4 Marks

Data Flow Diagrams:



MODEL

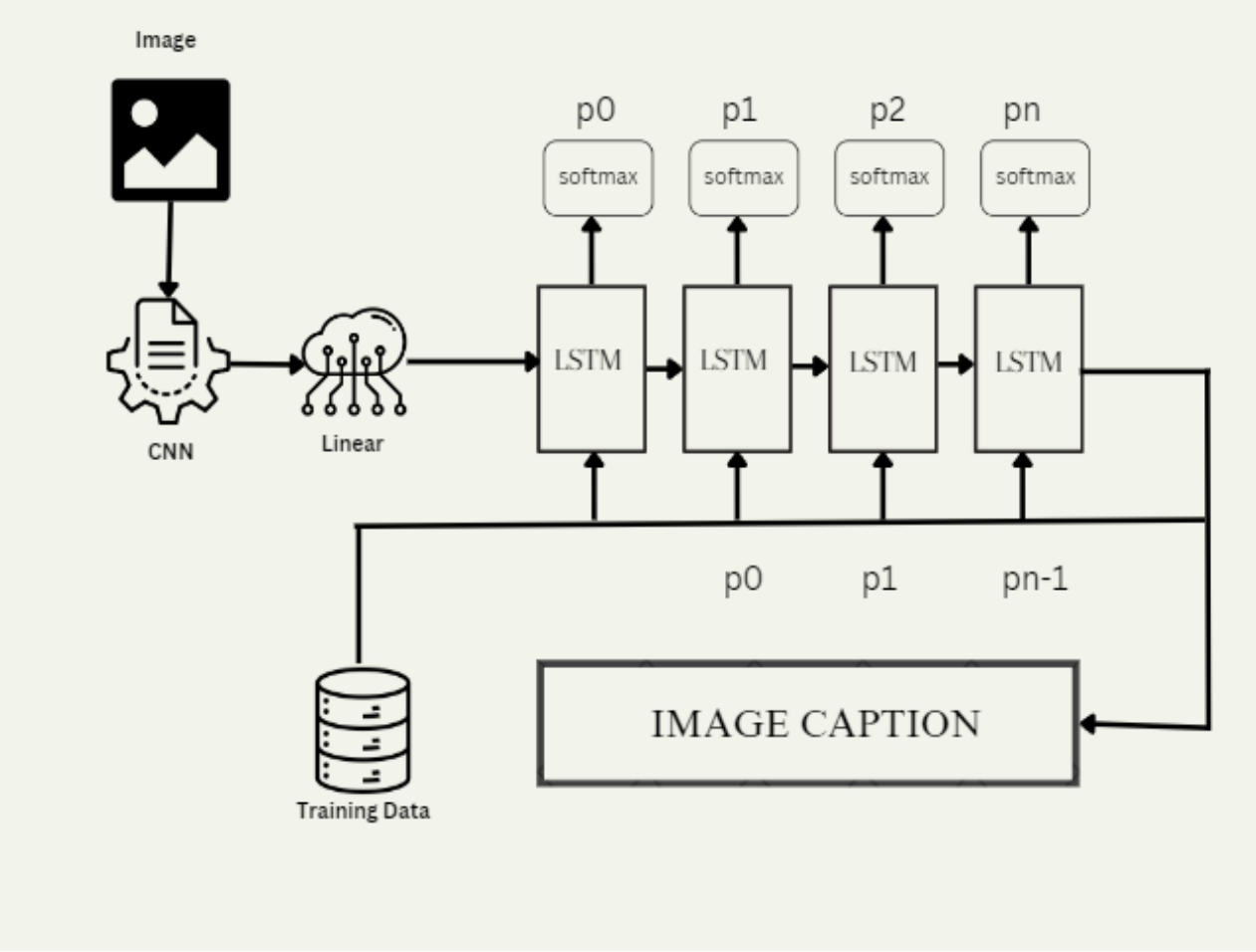


Image
CNN
Linear
p0
p1
p2
pn
softmax
softmax
softmax
softmax
LSTM
LSTM
LSTM
LSTM
p0
p1
pn-1
Training Data
IMAGE CAPTION

Data Flow Explanation

1. IMAGE CNN Linear Training Data: These are the raw image data fed into the Convolutional Neural Network (CNN) model. The CNN processes the image data by applying various convolutional layers and max pooling operations. The output of these operations is a set of feature maps that are then flattened and concatenated into a single vector.
2. Image CNN Linear Model: This model receives the input vector from the CNN and applies one or more fully connected layers. The fully connected layers perform calculations on the input vector to generate a set of outputs. The exact number of outputs depends on the task.
3. Image Caption: In this step, the CNN Linear model's output is fed into a Recurrent Neural Network (RNN) model, specifically a Long Short-Term Memory (LSTM) model. The LSTM model is responsible for generating a caption that describes the image. This is done by using a series of input-output pairs where the input is a feature vector and the output is a word from the caption.
4. Softmax: After generating the caption, the LSTM model passes its output through a softmax layer. The softmax layer is a type of activation function that converts the output values of the LSTM into probabilities. These probabilities represent the likelihood of each word in the caption.
5. Output: The output of the diagram is the caption generated by the LSTM model, where each word in the caption is selected based on its probability from the softmax layer.

User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
End User	Registration	USN-1	As an end user of the image caption generator app, I can upload images, and the app generates descriptive captions for them. The captions should be relevant to the image content and easily understood.	I can see captions that are generated for the image and classify the object	High	Sprint-1

End User		USN-2	As an end user, I can edit the captions generated by the app to make them more accurate or personalized. The edited captions should replace the generated ones.	Can also be used for object classification	High	Sprint-1
End User		USN-3	As an end user, I can save the generated or edited captions along with the corresponding images for future reference. Saved captions should be accessible in the app.	Captions can be edited	Low	Sprint-2
System Admin		USN-4	As a system administrator, I can deploy the trained image captioning model to a production environment, making it accessible for end users through the app.	This dataset can also be used for other models	Medium	Sprint-1
System Admin	Login	USN-5	As a system administrator, I can monitor the performance of the image caption generator, ensuring it runs smoothly and efficiently. Any issues or errors should be promptly addressed.	We can use this model for other datasets and train them as required	High	Sprint-1
System Admin	Dashboard	USN-6	As a system administrator, I can scale the infrastructure to accommodate increasing user demand, ensuring the app remains responsive and available.	We can change the model based on accuracy	High	Sprint-1
Web User	Login	USN-7	As a web user, I can access a web interface to upload images for caption generation. The uploaded images should be processed by the app, and captions should be generated.	Web users can create an account and login to the dashboard	High	Sprint-1

Web User	Dashboard	USN-8	As a web user, I can access and view the generated captions for images I've uploaded through the web interface.	Anyone with the credentials can access the account	High	Sprint-1
Web User		USN-9	As a web user, I can edit captions generated for images I've uploaded via the web interface. The edited captions should replace the generated ones.		High	Sprint-1
Git User	Git registration	USN-10	As a Git user, I can set up a Git repository for the image caption generator project. The repository should include project files, scripts, and documentation for collaborative development.	Anyone can access the resources and collaborate with the teammates	High	Sprint-2
Git User		USN-11	As a Git user, I can collaborate with other team members by branching, committing, and merging code changes for the image caption generator project. Version control should be effectively managed using Git.	Available for open source and can be developed further	High	Sprint-2
Git User		USN-12	As a Git user, I can initiate and participate in code reviews to ensure code quality and adherence to coding standards in the image caption generator project. Code reviews should lead to improvements in project code.		High	Sprint-2