User

Analyze the Question
Asked By User

Identify the Intent of Question
(Intent Classification)

Pick a response of
identified Intent

USER

Query Chatbot

View / Download Images/ Videos and PDF Files

Print PDF Files

Listen to Voice Response

Read the Text Response

Visit to Links by clicking them

```
Collect and Specify the
Requirements
```

```
Collect Dataset From
Admin offices and other
sources
```

```
Clean and Preprocess Data
```

```
Training / Fine Tuning and
Evaluation of Model
```

```
Save Trained Weights with
best accuracy
```

```
Build a We
and Integrat
```

b App
e Model

```
┌─────────────────────────┐                                    ┌─────────────────────────┐
│ 1.0                     │                                    │ 2.0                     │
│                         │                                    │                         │
│                         │     Bag of Words Vector            │ **First Linear Layer (L1)** │
│     **Input Layer**     │ ──────────────────────────────▶    │ **Input** = Bag of Word │
│     Intents Dataset     │                                    │ **Output** = Weight_1 * Input │
│                         │                                    │     + Bias_1            │
└─────────────────────────┘                                    └─────────────────────────┘
```

Input Layer
Intents Dataset

Bag of Words Vector

First Linear Layer (L1)
Input = Bag of Word
Output = Weight_1 * Input + Bias_1

L1 Output

Softmax Layer
Input = Logits
Output = Probabilities

Logits

Linear Transformation (L3)
Input = Output of R2
Output = Weight_3 * R2 Output + Bias_3
Output of this layer are Logits

R2 Output

Relu Activation (R2)
Input = Output of L2
Output = ReLu(Input)

L2 Output

Relu Activation (R1)
Input = Output of L1
Output = ReLu(Input)

R1 Output

Linear Transformation (L2)
Input = Output of R1
Output = Weight_2 * R1 Output + Bias_2

```
┌─────────────────────┐
│   Training Data     │
│   Intents.Json      │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│ Preprocessing Module│
│   (Tokenization,    │
│   Stemming, Bag of  │
│   Words Creation)   │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│   Neural Network    │
│   Initialization    │
└─────────────────────┘
           │
           ▼
┌─────────────────────┐
│   Loss Function     │
│ (Cross Entropy Loss)│
└─────────────────────┘  ──────▶
```

```
                                    Save Model


                 Track Loss and Update
                 Parameters after each
                        Epoch


           Training Loop
           1000 Epochs


  Optimizer
  (Adam Optimizer)
```