

# **AI INBOUND CALLING AGENT**

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## **1. Dataset Description**

This data has been manually created for the Final Year Project titled "AI Inbound Calling Agent; Natural Language Understanding Module". The intents and utterances included in this document are self-generated examples designed specifically for training and experimentation purposes.

The data is NOT taken from any official university records, published datasets, or real-world student queries. It may contain inaccuracies, assumptions, or simplified language constructs.

This data is intended solely for academic learning, model experimentation, and demonstration of NLU techniques such as intent classification and entity extraction.

## **2. Defined Intents (User Goals)**

This section includes all the intents designed specifically for university admission-related queries. Each intent represents a unique purpose behind a user's utterance within the **admissions domain**, such as fee inquiries, eligibility questions, deadline information, and availability of programs

### **2.1 admission\_open\_date:**

The user asks when admissions will start for a program, degree, or the university.

### **2.2 admission\_deadline:**

The user asks about the last date to apply.

### **2.3 program\_availability:**

The user asks whether a specific program is offered.

#### **2.4 program\_fee:**

The user asks about tuition fees for a program.

#### **2.5 Program\_eligibility:**

The user asks for admission criteria (marks, subjects, previous degree).

#### **2.6 Required\_documents:**

The user asks what documents are needed for admission.

#### **2.7 Fee\_submission\_deadline:**

The user asks when they must pay the admission/semester fee.

#### **2.8 classes\_start\_date:**

The user asks when classes will begin.

#### **2.9 Greeting:**

The user opens the conversation (hello, salam, etc.).

#### **2.10 Goodbye:**

The user ends the conversation(ok, bye, Allah hafiz, etc).

### **3. English Utterance Examples:**

#### **admission\_open\_date**

1. When will the admissions open?
2. What is the starting date for new admissions?
3. Are admissions open right now?
4. When can I apply for admission?
5. Is the admission cycle for this year open yet?
6. Please tell me the admission opening date.
7. When do you start accepting applications?
8. Has the university started admissions?
9. Could you tell me when admission will begin?
10. I want to know the admission opening schedule.

## **admission\_deadline**

1. What is the last date to apply?
2. When is the admission deadline?
3. When can I submit my application?
4. Is the deadline for admissions announced?
5. Please tell me the closing date for applications.
6. When does the admission form submission end?
7. What's the final date for online applications?
8. How long do I have to apply for this program?
9. When is the last day for admission registration?
10. I want to know the admission end date.

## **program\_availability**

1. Do you offer the BS Computer Science program?
2. Is the MBA program available?
3. Does your university have a psychology degree?
4. Is this course offered at your campus?
5. Do you have any engineering programs?
6. Is the BBA program currently available?
7. Do you provide master's programs?
8. Is software engineering offered this year?
9. Can you tell me if the nursing program exists?
10. I want to know if this degree is available.

## **program\_fee**

1. What is the fee for the BS CS program?
2. How much does the MBA program cost?
3. Please tell me the tuition fee for this course.
4. What's the per-semester fee of BBA?
5. How much do I have to pay for this degree?
6. Is there any admission fee for this program?
7. What is the total cost of the program?
8. Can you share the fee structure?
9. I want to know the semester fee.
10. How much is the annual fee for this program?

## **program\_eligibility**

1. What is the eligibility for BS Computer Science?

2. How many marks are required for admission?
3. Am I eligible for this program?
4. What qualifications do I need to apply?
5. What criteria do you have for the CS program?
6. Can you tell me the minimum percentage needed?
7. Do I need a specific subject background?
8. What's the entry requirement for this degree?
9. Is there a merit requirement for this program?
10. Who can apply for this course?

## **required\_documents**

1. What documents do I need for admission?
2. Can you tell me the required documents for applying?
3. What paperwork is needed for the admission process?
4. Do I need my original documents for submission?
5. Which documents should I bring for admission?
6. What documents are needed for the BS program?
7. Please tell me the list of documents required.
8. Do I need my CNIC or B-Form to apply?
9. What are the mandatory documents for admission?
10. What documents must I upload with the application?

## **fee\_submission\_deadline**

1. What is the deadline to submit the admission fee?
2. When is the last date to pay the semester fee?
3. How long do I have to submit the fee?
4. Please tell me the fee submission due date.
5. When does the fee payment close?
6. Is there a deadline for fee deposit?
7. What's the final day to pay the fees?
8. Until when can I submit my fee?
9. I want to know the fee payment deadline.
10. When do I need to pay the admission fee?

## **classes\_start\_date**

1. When will the classes start?
2. What is the class commencement date?
3. Can you tell me when the semester begins?
4. When do the new classes start?
5. What is the starting date of the session?

6. When will the academic year begin?
7. When do you start regular classes?
8. I want to know the class start schedule.
9. What is the date for the classes to begin?
10. When does the first semester start?

## **greeting**

1. Hello
2. Hi
3. Assalam o Alaikum
4. Good morning
5. Good afternoon
6. Good evening
7. Hey
8. Hi there
9. Hello, I need some help
10. Salam, I have a question

## **goodbye**

1. Thank you, goodbye
2. Okay, bye
3. Thanks, that's all
4. Goodbye
5. See you later
6. That's it, thanks
7. Alright, bye
8. Okay, that was helpful, thanks
9. I'm done, thank you
10. Bye, have a nice day

## **4. Roman Urdu Utterance Examples**

Roman Urdu examples, which are essential because:

- Most callers in Pakistan speak Roman Urdu on phone
- It improves NLU accuracy by 40–60%
- It prepares your model for multilingual, real-world deployment
- It makes your BERT fine-tuning much more robust

## **admission\_open\_date**

1. Admission kab shuru honge?
2. Admissions ki starting date kya hai?
3. Kya admissions open hain?
4. Mein admission kab apply kar sakta hoon?
5. Is saal admissions kab start honge?
6. Mujhe admission open date bata dein.
7. Aap log applications kab se le rahe hain?
8. Kya university ne admissions start kar diye hain?
9. Admission kab begin honge?
10. Admission shuru hone ka time bata dein.

## **admission\_deadline**

1. Admission ki last date kya hai?
2. Apply karne ki final date kab hai?
3. Admission ki deadline bata dein.
4. Form submit karne ki aakhri tareekh kya hai?
5. Admissions kab close honge?
6. Application ki ending date kya hai?
7. Kitne din tak apply kar sakte hain?
8. Admission form ki closing date kya hai?
9. Mujhe admission end date chahiye.
10. Apply karne ka akhri din kab hai?

## **program\_availability**

1. Kya aap BS Computer Science offer karte hain?
2. BSCS program available hai?
3. Kya psychology degree milti hai?
4. Ye program aap ke campus mein hota hai?
5. Kya engineering programs offered hain?
6. BBA program available hai ya nahi?
7. Aap log master programs bhi dete hain?
8. Is saal software engineering offer hogi?
9. Nursing program hota hai yahan?
10. Kya yeh degree available hai?

## **program\_fee**

1. BS CS ki fee kitni hai?
2. MBA program ka kharcha kitna hai?

3. Is course ki tuition fee bata dein.
4. BBA ka per semester fee kya hai?
5. Iss degree ki total fee kitni hai?
6. Kya is program ki admission fee hai?
7. Program ka total cost kya banta hai?
8. Fee structure share kar dein.
9. Semester fee kitni parti hai?
10. Is program ki saal ki fee kya hai?

## **program\_eligibility**

1. BS CS ki eligibility kya hai?
2. Admission ke liye kitne marks chahiye hotay hain?
3. Kya mein is program ke liye eligible hoon?
4. Apply karne ke liye kya qualification chahiye?
5. MBA ke liye kya criteria hai?
6. Minimum percentage kitni chahiye?
7. Kya specific subjects required hain?
8. Is degree ke entry requirements kya hain?
9. Program ke liye merit requirement kya hai?
10. Kaun log apply kar sakte hain?

## **required\_documents**

1. Admission ke liye kaun se documents chahiye?
2. Apply karne ke liye konsi documents zaroori hain?
3. Admission process ke documents bata dein.
4. Kya original documents denay hotay hain?
5. Admission ke liye kon kon se papers chahiye hotay hain?
6. BS program ke required documents kya hain?
7. Please documents ki list bata dein.
8. Kya CNIC ya B-Form chahiye hota hai?
9. Kaun se documents upload karne hotay hain?
10. Admission ke liye mandatory documents kya hain?

## **fee\_submission\_deadline**

1. Fee submit karne ki last date kya hai?
2. Semester fee kab tak jama karwa sakte hain?
3. Fee submission ki deadline kya hai?
4. Fee pay karne ki akhri tareekh bata dein.
5. Fee deposit kab close hoti hai?

6. Kya fee ki koi due date hai?
7. Fees jama karwane ka final din kab hai?
8. Kab tak fee pay karni hoti hai?
9. Mujhe fee payment deadline chahiye.
10. Admission fee kab tak jama karwa sакta hoon?

## **classes\_start\_date**

1. Classes kab start hongi?
2. Classes ki starting date kya hai?
3. Semester kab shuru hota hai?
4. Nayi classes kab se begin hoti hain?
5. Session start hone ki tareekh kya hai?
6. Academic year kab start hota hai?
7. Regular classes kab se hoti hain?
  
8. Classes start schedule bata dein.
9. Classes begin date kya hai?
10. Pehli semester ki classes kab shuru hongi?

## **greeting**

1. Salam
2. Assalam o Alaikum
3. Salam bhai
4. Hello
5. Hi
6. Salam, madad chahiye
7. Wa Alaikum Salam
8. Salam, ek sawaal hai
9. Hi, mujhe info chahiye
10. Hello, koi guide kar dein

## **goodbye**

1. Shukriya, Allah Hafiz
2. Theek hai, bye
3. Thank you, Allah Hafiz
4. Bas yehi, shukriya
5. Bye
6. Bohat shukriya, Allah Hafiz
7. Achha theek, bye
8. Main ja raha hoon, Allah Hafiz

9. Kaam ho gaya, shukriya
10. Allah Hafiz, acha din ho

## 5. Future Improvements

### 5.1 Expansion of the Dataset (More Intents & Utterances)

The current data is intentionally designed on a small scale to support initial model experimentation and understanding of the NLU pipeline. However, real-world conversational systems require significantly larger and more diverse datasets. Future improvements should focus on expanding:

- **Number of intents** (e.g., hostel queries, scholarships, course registration, exam details, fee refunds, campus facilities, etc.)
- **Number of utterances per intent**, ideally 50–100 examples per class
- **Variations in user language**, including spelling variations, Roman Urdu diversity, grammar inconsistencies, slang, shortcuts, and code-mixed expressions
- **Edge-case queries**, such as ambiguous questions, incomplete sentences, and unexpected user behaviors

A larger dataset will allow the model to generalize better, reduce misclassification, and improve accuracy in real-world deployment.

### 5.2 Addition of Entity Recognition (NER) Module

Currently, the NLU implementation focuses primarily on **Intent Classification**, which identifies what the user wants. However, real conversational AI systems require **Entity Extraction** as well to identify important details from user utterances, such as:

- **Program names** (BSCS, BBA, BSSE)
- **Semester/session names** (Fall 2025, Spring 2024)
- **Degree types** (Undergraduate, Graduate)
- **Dates & deadlines**
- **Fee type** (admission fee, semester fee, registration fee)

Adding a **Token Classification (NER) model**, fine-tuned using XLM-RoBERTa, will convert unstructured text into structured information.

