**Steps in Development**

**1. Select the LLM Version:**

* Start with GPT-2, as its weights are publicly available.

**2. Fine-Tune:**

* If the FAQs and their answers have been collected, use this dataset to fine-tune the model. Fine-tuning helps the model understand the specific domain and provide better answers for admission-related queries.
* Tools like Hugging Face's Transformers library can help simplify this process.

**3. Deploy the Model:**

* Once fine-tuned, deploy the model using a service or platform suitable for infrastructure. Flask or other similar frameworks can be used for creating a web-based API.

**4. User Interface:**

* Develop a user-friendly interface where students can type their queries. This can be integrated into the college's official website.

**5. Feedback Loop:**

* It is essential to have a mechanism for users to provide feedback on the answers. This will help in identifying areas where the model might be providing incorrect or unclear responses.
* Periodically review this feedback and consider re-fine-tuning the model to improve accuracy and clarity.

**6. Backup Option:**

* Always provide users an option to contact an admission office for queries that the chatbot cannot answer satisfactorily.

**7. Regular Monitoring and Updates:**

* Admissions processes and policies can change over time. Periodically review the FAQs and other information the model has been trained on to ensure it remains consistent.

**Advantages of Using LLM-based Approach:**

**1. Flexibility & Adaptability**

* Example: If a student asks, "How do I apply if I've taken a gap year?", the LLM can understand and respond appropriately even if it has not been explicitly trained on this specific phrasing.

**2. Natural Interactions**

* Example: Instead of just stating "Deadline is December 1st", it can respond, "The application deadline for this year is December 1st. Make sure to gather all your documents by then!"

**3. Broad Domain Knowledge**

* Example: A student might ask a question like "What's the difference between a B.Sc. and a B.A.?" Even if it is not a college-specific question, an LLM can provide a general answer.

**Disadvantages & Risks of Using LLM-based Approach:**

**1. Potential for Inaccuracy**

* Example: A student asks about scholarship opportunities, and the LLM provides outdated or incomplete information.
* Mitigation: Regularly fine-tune the model with updated information. Implement a feedback loop where users can report incorrect answers, and periodically review and address these issues.

**2. Computational Overhead**

* Example: Larger versions of models like GPT-2 can be resource-intensive, leading to slower response times if not adequately supported.
* Mitigation: Opt for smaller model versions or ensure robust server infrastructure. Consider solutions like model distillation to reduce model size without significant loss in performance.

**3. Unpredictability**

* Example: A student asks a sensitive question, and the model provides an answer that is unintentionally insensitive or inappropriate.
* Mitigation: Implement a list of flagged terms or topics where the chatbot defaults to a safe, scripted response or directs the user to human assistance.

**4. Dependency on Training Data**

* Example: If the LLM has only been trained on outdated admission FAQs, it might not know about new programs or policies introduced by the college.
* Mitigation: Ensure a regular update cycle where the LLM is fine-tuned on the most recent data available. Establish a collaboration with the admissions office to get timely updates.

**Mitigation for General LLM Disadvantages:**

**1. Human-in-the-loop**

* For particularly tricky or sensitive topics, having a mechanism to redirect users to human representatives can be highly useful.

**2. Transparency**

* Make users aware they are interacting with an AI and offer clear disclaimers about the accuracy and scope of the information provided.

**3. Testing & Evaluation**

* Before official deployment, Test the chatbot with diverse user queries to spot and rectify any issues.