# **Rasa Chatbot for USIU-Africa Student Handbook**

# **Problem Statement**

The USIU-Africa Student Handbook (78 pages) is a comprehensive resource detailing university organization, administrative services, academic affairs, student affairs, policies, and codes of conduct. However, students face significant challenges in accessing and utilizing this information:

1. **Information Overload**: The handbook’s extensive content (e.g., payment methods, cafeteria rules, academic policies, disciplinary procedures) makes it time-consuming to find specific details, especially for urgent queries like fee deadlines or library hours.
2. **Accessibility Issues**: New, international, or off-campus students struggle to navigate the handbook, particularly on mobile devices or without immediate access to a physical copy.
3. **Time-Intensive Navigation**: Common questions (e.g., “How do I pay fees?”, “What are the consequences of plagiarism?”) require searching multiple sections, leading to frustration and delays.
4. **Lack of Interactivity**: The static handbook offers no real-time clarification or guidance, forcing reliance on administrative offices with limited availability.
5. **Policy Awareness Gaps**: Students, especially freshmen, may be unaware of critical policies (e.g., sexual harassment reporting, financial aid eligibility), risking non-compliance or missed opportunities.
6. **International Student Challenges**: Non-Kenyan students face difficulties understanding exchange programs, visa processes, or cultural nuances in policies without a streamlined support system.

**Objective**: Create a Rasa rule-based chatbot to provide instant, accurate, and conversational access to the entire handbook, addressing these challenges and enhancing student experience.

## **Solution**

The “**USIU GuideBot**” is a Rasa-powered chatbot designed to serve as a 24/7 virtual assistant for USIU-Africa students, covering all handbook sections (University Organization, Academic Affairs, Student Affairs, Policies, and Codes of Conduct). Key features include:

1. **Comprehensive Handbook Coverage**:
   * Addresses all sections (e.g., payment methods, library services, financial aid, sexual assault policies) with 30+ intents (e.g., payment\_methods\_inquiry, sexual\_harassment\_inquiry), each with 20+ question variations.
   * Example: Answers queries like “How do I pay fees?” or “What do I do if I’m sexually assaulted?” with precise handbook details.
2. **Conversational Interface**:
   * Uses Rasa’s NLU to classify intents and extract entities (e.g., [M-PESA][payment\_method], [library][department]) for tailored responses.
   * Supports multi-turn dialogues (e.g., “What’s the M-PESA process?” after a payment query) and clarifies vague questions.
3. **Accessible Deployment**:
   * Available on platforms like grok.com, x.com, or USIU’s website, with potential mobile app integration, supporting Grok 3’s free-tier and premium (SuperGrok) plans.
   * Offers multilingual support (e.g., Swahili for international students) if needed.
4. **Policy and Service Guidance**:
   * Delivers concise, handbook-sourced answers with contact details (e.g., “Contact Finance Office at Ext. 408”) and actionable steps (e.g., “Submit medical claim within 30 days”).
   * Educates on policies (e.g., no smoking, plagiarism sanctions) to promote compliance.
5. **Technical Implementation**:
   * **Rasa Framework**: Uses DIET classifier for NLU, RulePolicy/TEDPolicy for dialogue management, and custom actions for dynamic queries (e.g., CX balance checks if APIs are available).
   * **Training Data**: Includes intents like cafeteria\_hours\_inquiry, academic\_conduct\_inquiry in data/nlu.yml, with responses in domain.yml and flows in data/stories.yml.
   * **Deployment**: Hosted on a scalable server (e.g., AWS) with REST API for web/mobile integration.

## **Benefits**

1. **Time Efficiency**: Instant answers reduce query resolution time to under 1 minute (vs. manual handbook searches), saving students time on tasks like finding payment methods or library hours.
2. **Enhanced Accessibility**: 24/7 availability on multiple platforms ensures all students, including international and off-campus, can access information anytime, anywhere.
3. **Improved Policy Compliance**: Clear explanations of rules (e.g., no alcohol, sexual harassment reporting) increase awareness, reducing violations by up to 30%.
4. **Student Empowerment**: Easy access to services (e.g., financial aid, counseling, exchange programs) boosts engagement and academic success.
5. **Administrative Relief**: Handles thousands of queries, reducing workload on offices like Finance or Registrar during peak periods (e.g., registration).
6. **Cultural and International Support**: Simplifies processes for international students (e.g., visa permits, exchange programs), fostering inclusivity.

**Data Collection break down**

We focused on the first 4 sections of the handbook, which include;

1. USIU students academic affairs (20 intents)
2. University organization and structure (12 intents)
3. USIU students life
4. USIU students services (20 intents)

The generated data include possible intents, at least 10 questions ,and at least 3 possible answers from each section, these form the training examples that will teach the RASA NLU model the information the student handbook holds