PRACTICAL - 6

AIM- Prepare System Analysis and System Design of identified Requirement specification using structure design as DFD with data dictionary and Structure chart for the specific module.

1. System Analysis

1.1 Identified Functional Requirements

1. User Input Processing → Accepts text input from the user.
2. Language Detection → Identifies the source language.
3. Translation Processing → Converts text from source to target language.
4. AI Model Processing → Uses a trained AI model for accuracy.
5. Output Generation → Displays the translated text to the user.

1.2 Identified Non-Functional Requirements

1. Performance → Should process translation within 2 seconds.
2. Scalability → Should support multiple languages.
3. Security → Should ensure data privacy and encryption.
4. Usability → Should provide a simple and responsive interface.

2. System Design

2.1 Data Flow Diagram (DFD)

DFD Level 0 (Context Diagram)

This represents the entire system as a single process:

Entities: User, Translation System, Database

Process: Text-to-Text Translation

Data Stores: Language Database, User Preferences

DFD Level 1

Breaks the system into the following major processes:

1. User Input Module → Receives user text.
2. Language Detection Module → Detects source language.
3. Translation Engine → Uses AI models to translate text.
4. Output Module → Displays translated text.

DFD Level 2

Detailed process breakdown:

- User Input Module → Text Validation, Language Detection
- Translation Engine → AI Model Processing, Context Adjustment
- Output Module → Text Formatting, Display

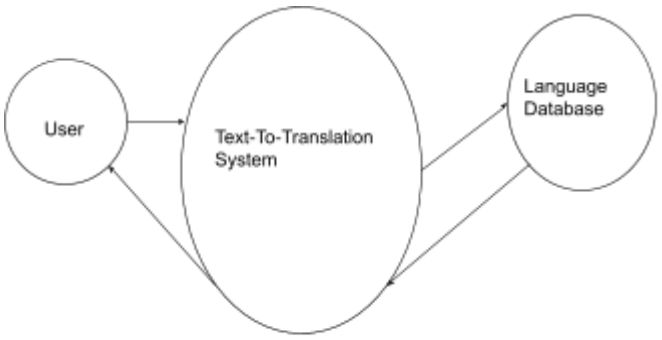
2.2 Data Dictionary

Element	Description	Data Type
User_Input	Text entered by the user	String
Detected_Language	Auto-detected language	String
Target_Language	User-selected target language	String
Translated_Text	Final translated output	String
AI_Model	AI processing component	Model
Language_DB	Database storing language data	Database

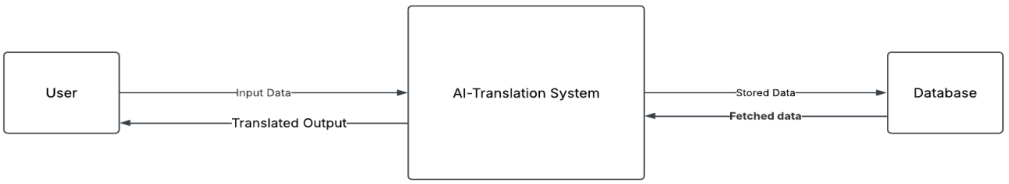
2.3 Structure Chart

The Structure Chart represents the module hierarchy:

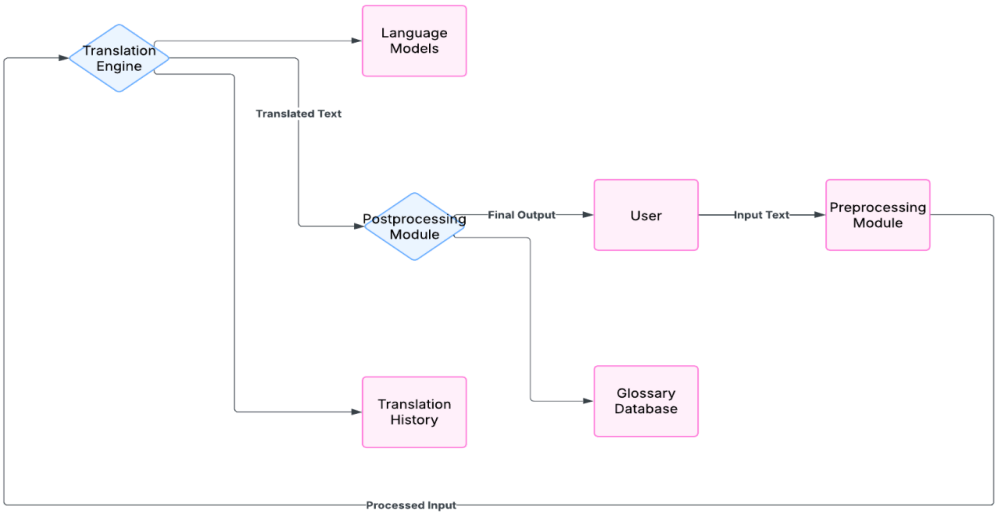
Text-to-Text Translation System
│── User Interface
│ ├── Text Input Module
│ ├── Output Display Module
│
│── Translation Engine
│ ├── Language Detection
│ ├── AI Model Processing
│ ├── Contextual Adjustments
│
│── Data Management
│ ├── Language Database
│ ├── User Preferences Storage



DFD Level 1



DFD Level 1



DFD Level 2