Design and Develop an Intelligent Chatbot

An Intelligent chatbot, sometimes also called Conversational User Interface (CUI), can **sense**, **think**, and **respond** naturally in the deployed environment. Such systems draw their success by having a simple interface and providing brief but relevant information to a query made by the user. The prime examples are Siri, Alexa, and Google. These systems rely heavily on machine learning and natural language processing techniques to offer the notion of intelligence. However, the perceived (user) intelligence is largely due to the simplicity and flexibility of usage.

Problem specification:

Design and develop an intelligent Chatbot software with the key specifications as follow:

1. Should use **text** as a medium of interfacing, i.e., input and output
2. Should only **respond** to topics relevant to **C++ programming**
3. Should perform all three core activities; **sense**, **think**, **respond**
   (a) **Sense**: should be able to accept the question in the free-form text, from the user
   (b) **Think**: should be able to interpret the question, assess the requirements, and fetch the relevant information
   (c) **Respond**: should be able to display a brief answer than a simple copy-paste of information from the source

Final Project Report

The final project report should be formatted as a two-column, 4-6 page IEEE conference paper, with appropriate references in IEEE format. The template file can be found here: `https://www.ieee.org/conferences_events/conferences/publishing/templates.html`. The emphasis should be on analysis, interpretation, and validation of the choice of method(s) used and any underlying assumptions with critical discussion on conclusions.
The report should have the following four mandatory sections:

- Introduction
- Methods
- Results
- Discussion and Summary

You may also use Google Scholar to see sample of reports written in IEEE Conference Paper format.

Project Evaluation Sheet

Project Title:

Project Team:

S No	Student Name	Reg No
1		
2		
3		
4		
5		

Comments:

Evaluator: _____ **Date**: _____

Assessment Rubric

S No	Attribute	[1-3] Below Expectation	[4-7] Meeting Expectation	[8-10] Exceeding Expectation	Student Score 1	2	3	4	5
1	Apply the program development process to problems that are solved using fundamental programming constructs and predefined data structures	Summarizes the phases of the program development cycle	With guidance during the design phase, produces working code and performs some testing	Develops a working program solution by implementing design, coding, and testing that includes error checking					
2	Construct multiplefile or multiplemodule programming solutions that use class hierarchies, inheritance, and polymorphism to reuse existing design and code	Describes when inheritance and the use of class hierarchies is an appropriate design strategy	With guidance, produces a programming solution using inheritance and polymorphism	Designs and constructs a programming solution using the features of inheritance and polymorphism appropriately					
3	Create programming solutions that use data structures and existing libraries	Produces programming solutions that use existing library code	Organizes programming solutions that incorporate appropriate data structures and pre-existing code	Designs and develops programming solutions that use data structures, preexisting libraries, and individual library code					
4	Verify program correctness through the development of sound test plans and the implementation of comprehensive test cases	Produces test plans for object oriented programming solutions that considers code coverage	Analyzes a program and devises a test plan that examines code coverage and develops test cases for data coverage	Constructs a test driver for code coverage and creates a formal test plan choosing comprehensive test cases for data coverage					
5	Report Sections: Cover sheet, introduction, methods, UML diagrams, design strategies, assumptions, data, refs	Report is unstructured. Majority of the sections are missing. Figures are not properly formatted	Some of the required sections are missing. Figures and tables are properly formatted and have captions	All sections are included and properly formatted as per given format. Figures and tables are properly formatted, have captions and are referred in text.					
6	Professional ethics	References are missing or inadequate. Turnitin report is between 15 & 20%	Referencing standard is not used. Turnitin report is between 10 & 15%. Mostly web references were used	A referencing standard was used. Turnitin report is less than 10%.					
				Total Score:					