Practical Task 5

Babu Pallam
P2849288

EXERCISE 1: Formulation of Research Problem

Step VIII: Operationalize your concepts.

Objectives/Research Questions/Hypothesis	Major Concepts	Indicators	Variables	Unit of Measurement
Efficient Human-Machine Interaction	Natural Language Processing (NLP)	Knowledge of NLP Concepts	Familiarity of	understanding some NLP techniques
		Awareness of NLP Models	NLP Toolbox Awareness	Extensive knowledge of state of art tools
		Use of NLP Models	Adaptability Extensiveness	extensive knowledge of NLP models and their applications
	Multimodal Functionalities	Awareness of Multimodal Functionalities	Awareness of Frequency of usage	Different interaction modes and applications Preference of users
		Knowledge about Cross Modal Understanding	Consistency Integration Efficiency	Efficiency in integrating the cross-modal information
		Knowledge about User centric Designs	Application of Principal Flexibility of Design	Gain general understanding of user-centric designs and how to implement it in practice.
	Feedback Mechanisms	Understand Response Accuracy	NLP Task Coverage Consistency of NLP Models	Different aspect of accuracy with consistency
		Knowledge about Error Handling	Awareness of Effectiveness of	strong understanding of error handling strategies and how can it be applied on various situations.

Step IX: Operationally define your study population.

The study population means the group of users who use or interact with the systems developed or the research has focused on.

In this study, the study population is any machines or tools that have been designed based on NLP concepts for their academic, professional, or personal achievements. The systems can be anything which is available such as, chatbots, personnel (virtual) assistants on devices, text to speech or speech to text tools, tools that does the translation of language, or others.

Step X: Construct your hypothesis or hypotheses for each subobjective/research question.

Based on the preliminary analysis before the research to be conducted, hypotheses based on the subobjectives stated have been constructed as given below.

	Subobjectives	Hypothesises
1	To understand Natural Language Processing and Human centric models.	The features of Natural Language Processing systems can have a significant effect in human-machine interactions.
2	To understand Natural Language Generation	Applying natural language generation model can make a major positive impact in the accuracy of machine responses.

	which gives efficiency to the machine responses.	
3	To design personalize Interactions which makes the machines engage according to the situations arrived.	Making machine interactions more personalised improves the usability and user satisfaction compared to traditional systems.
4	To implement systems with multimodal Functionalities which includes voice, text, video, and motion.	The implementation of multimodal functionalities such as text, voice, video, and motion) increases the efficiency of user engagement and capabilities of human-centric systems.