**CS60045: Artificial Intelligence Assignment 1**

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Q1:

Mark want to design an Artificial System for music recommendation.

1.List the PEAS for the system.

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| Performance Measure (P) : Precision and recall rate (Mean Squared error & RMS error values), recommender persistence, user demographics, robustness, trust, labelling, privacy, etc.  Environment (E) : Users  Actions Taken (A) : list of music recommendations for the user  Sensory inputs (S) : list of all music, tracks and genre of music liked and/or purchased by users, music browsing and listening history of users |

2.Classify the environment for the system  
Deterministicness  
Staticness  
Observability  
Discreteness

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| Deterministicness : Deterministic Environment, because the agent's actions (choices of products to display) determines the final appearance of the list.  Staticness : Static Environment, because the list doesn't change while the agent is calculating what to recommend. The content and history are all available before the agent starts calculating.  Observability : Fully Observable Environment  Discreteness : Discete Environment, because it is working with static digital information (namely, user history and product info). |

3.Design workflow of an agent for the corresponding artificial system.

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| Uutility-based Agent or Learning Agent would be most appropriate workflow design for designing the given recommender system agent.  The workflow of a learning agent is given below: |

Q2:

R2-D2 and C-3PO, droids (robot) from Starwars decided to take total turing test to prove their intelligence. But they are unfamiliar with the concept of test, so help them by telling what do you mean by Total Turing Test?

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| In artificial intelligence , the Turing Test is a method for determining whether or not a computer is capable of thinking like a human. The test is named after Alan Turing , an English mathematician who pioneered artificial intelligence during the 1940s and 1950s, and who is credited with devising the original version of the test. According to this kind of test, a computer is deemed to have artificial intelligence if it can mimic human responses under specific conditions. In Turing's test, if the human being conducting the test is unable to consistently determine whether an answer has been given by a computer or by another human being, then the computer is considered to have "passed" the test.  The computer would need to possess the  following capabilities:   * *natural language processing* to enable it to communicate successfully in English; * *knowledge representation* to store what it knows or hears; * *automated reasoning* to use the stored information to answer questions and to draw new conclusions; * *machine learning* to adapt to new circumstances and to detect and extrapolate patterns.   Turing's test deliberately avoided direct physical interaction between the interrogator and the  computer, because physical simulation of a person is unnecessary for intelligence. However,  the so-called **total Turing Test** includes a video signal so that the interrogator can test the  subject's perceptual abilities, as well as the opportunity for the interrogator to pass physical  objects "through the hatch." To pass the total Turing Test, the computer will need   * *computer vision* to perceive objects, and * *robotics* to manipulate objects and move about. |