21MAT301 PHASE – 1 SUBMISSION

Team: 13

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Title of the work:

Employee Retention Analytics using Hidden Markov Models (HMMs).

Introduction:

Employee retention analytics with Hidden Markov Models (HMMs) is like having a crystal ball to understand why employees might leave a job. Picture it as a smart detective analysing information about how employees perform, how long they've been part of the company, their feedback, and other important details. HMMs help by breaking down employees' situations into different "states," like content or thinking of moving on. This method allows companies to see how likely it is for someone to switch from one state to another. By using this insight, organizations can step in early, offering extra support or tailored solutions to keep their team happier and motivated. Ultimately, this approach helps companies make smarter decisions to retain their valuable employees for the long haul.

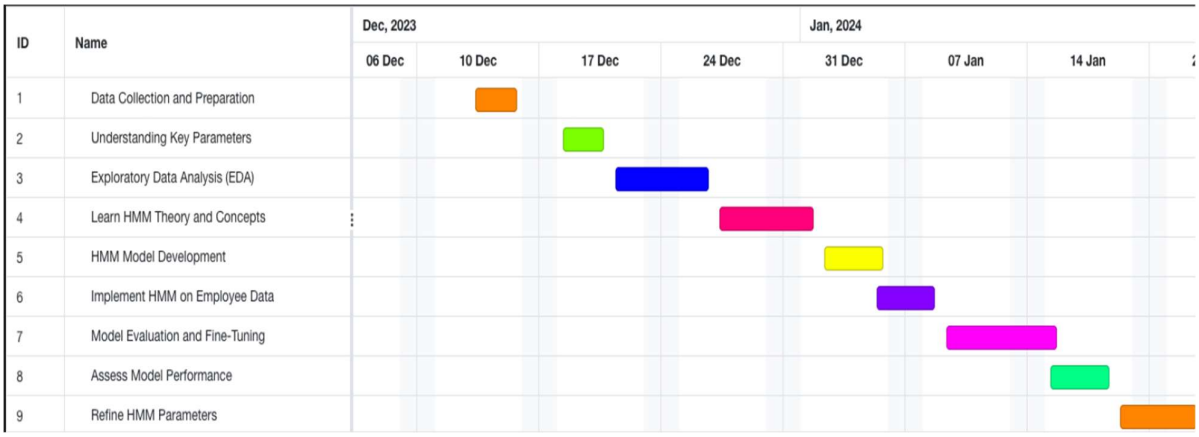
Hidden Markov Models (HMMs) are a statistical tool used to understand sequences of observations where there's an underlying process that's not directly observable. In the context of employee retention, HMMs help by modeling different "hidden states" that employees might be in, such as satisfied, dissatisfied, or considering leaving. These states are not directly seen but are inferred from observable features like performance ratings, tenure, absenteeism, or engagement levels.

Abstract:

Employee retention stands as a paramount challenge for organizations striving to foster a stable and engaged workforce. This study delves into the efficacy of Hidden Markov Models (HMMs) in predicting employee decisions pertinent to job retention. By harnessing the capabilities of HMMs, which adeptly model sequences of observations with underlying hidden states, this research aims to unravel intricate patterns in employee behaviors indicative of potential job departure.

Leveraging discernible indicators like performance evaluations, tenure, absenteeism, and engagement metrics, HMMs reveal latent 'states' among employees, such as satisfaction levels or inclinations to seek alternative opportunities. The predictive prowess of HMMs empowers organizations to preemptively identify potential turnover risks and proactively intervene. This abstract encapsulates the pivotal role of HMMs as a potent analytical tool in fortifying employee retention strategies through insightful data-driven forecasts and strategic interventions.

Gantt chart:



References:

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