Employing Computational Simulation to Elucidate and Therapeutically Address Mental Health Pathologies: A Multifaceted Methodological Approach for Enhanced Understanding and Intervention

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***Abstract*—This research paper presents a groundbreaking study on mental health pathologies in the tech workplace, utilizing computational simulations to offer novel insights and therapeutic strategies. The study employs a comprehensive dataset from a 2014 survey, augmented with ongoing data from a 2016 survey, to assess attitudes towards mental health and the frequency of mental health disorders within the tech industry. Advanced machine learning algorithms, including K-Nearest Neighbors (KNN), Support Vector Machine (SVM), Random Forest, and Decision Tree classifiers, were rigorously applied to the dataset. The results were remarkable, with the Random Forest model achieving an impressive accuracy of 79.3%. The KNN model followed with an accuracy of 64.97%, the SVM model with 73.57%, and the Decision Tree model demonstrated an accuracy of 76.75%. This comprehensive approach not only enhances the understanding of mental health in the tech sector but also lays the groundwork for targeted therapeutic interventions and strategies, underscored by the predictive power of computational analytics.**