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Machine Learning Based Classification On Work Life Balance Among Women Teachers In Higher Education

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Abstract
Stress is a prevalent and significant global health concern that arises from the interaction between an individual and their surrounding environment. The attainment of work-life balance is a significant objective for women in the workforce. In the absence of job satisfaction and a consistent lifestyle, female employees may encounter a predicament. In the current societal context characterized by rapid acceleration, educational institutions are actively seeking strategies to positively impact the overall performance of their teachers. This includes efforts to boost the morale of female teachers and improve faculty retention rates. Work-life balance (WLB) is widely recognized as one of the most crucial factors that significantly impact an organization's overall effectiveness. Women experience higher levels of stress compared to men due to the additional responsibilities they typically shoulder. These responsibilities include caring for children, family members, and managing household tasks, in addition to their professional obligations. In the context of India, it has been observed that a significant proportion, specifically over 85%, of women experience heightened levels of stress as a result of managing familial responsibilities alongside their professional commitments. Severe problems can arise if appropriate measures are not implemented in response. In both institutional and domestic settings, the issue of work-life balance is increasingly becoming a top priority for employers and employees alike. The main aim of this study is to evaluate the specific type of WLB experienced by women school teachers in the Kumbakom district of Tamil Nadu. To support this objective, a classification was conducted utilizing machine learning algorithms to evaluate the Work Life Balance Indicator of professionals. The aim is to determine the status of work life balance in this specific context. Based on an analysis of general and marital status, no substantial differences have been observed in the quality of WLB among teachers.

Key words- WLB, Educational Institute, Machine Learning, Classification, Accuracy

1. INTRODUCTION

The issue of achieving a work-life balance is becoming increasingly prominent in both organizational and domestic settings, capturing the attention of employers and employees alike. In the current fast-paced society, HR managers are actively exploring various options to effectively contribute to their company's financial performance, enhance employee spirits, ensure the retention of personnel who hold significant expertise relevant to the organization, and stay updated with emerging workplace style [1]. In contemporary society, characterized by an abundance of conflicting responsibilities and commitments, achieving a harmonious WLB has emerged as a prominent concern within the realm of employment.

The subject of work-life balance (WLB) is not only relevant to individuals, but also carries importance for companies, the state, and society as a whole. The future labor force and customer base rely on women's participation in childbearing and parents' role in child-rearing. The transition from a traditional family structure, characterized by a sole male breadwinner, to a contemporary model where both parents engage in paid employment, has presented challenges in effectively raising children, particularly due to the persistence of workplace norms that are rooted in the male breadwinner archetype.

In previous eras, organizations regarded "work" and "life" as distinct and separate spheres. It was anticipated that employees would prioritize the interests of the organizations over their personal interests. Historically, organizations have maintained the perspective that employees' activities outside the office are considered their personal affairs, while their conduct within the office falls within the purview of the organization. Over time, there has been a shift in attitudes. Contemporary organizations and management have acknowledged the reciprocal influence between work and personal life. An increasing number of enterprises currently adhere to the notion that objectives pertaining to individuals' personal and professional lives need not to be contradictory, but rather should be mutually reinforcing [2]. The implementation of work-life balance initiatives facilitates the harmonization of employees'

professional and personal spheres, resulting in favorable outcomes for both the individual worker and the employing firm.

The workload of teachers encompasses not only the time they spend within the educational institution, but also extends to their personal lives as they engage in preparation for the subsequent day. In addition to ensuring student records and fulfilling various administrative obligations, teachers must allocate additional hours on a daily basis in order to optimize their effectiveness and productivity within their profession. Therefore, it is of utmost significance to observe the concept of WLB in relation to teachers, particularly women who are employed in the field of education.

The idea of WLB is about managing one's concurrent duties and responsibilities in both their personal and professional lives well. Every employee must effectively manage the demands of their job and family life by prioritising both aspects at both a professional and personal level. The demand for instructors is always growing. The level of dedication exhibited by educators in attending to the needs of their students is unparalleled in comparison to other occupations. Teachers have a crucial role in facilitating students' acquisition of knowledge through their selfless and devoted service [3]. Learning about teachers is crucial since they carry out obligations as professors, lecturers, and other educators in the nursery, primary, and higher education sectors. This phenomenon induces tension among educators. Achieving a balance between professional responsibilities and familial obligations is known to contribute to optimal physical and mental well-being. The establishment of appropriate working circumstances, adherence to structured working schedules, and the provision of familial support are crucial in achieving optimal physical and mental well-being [4].

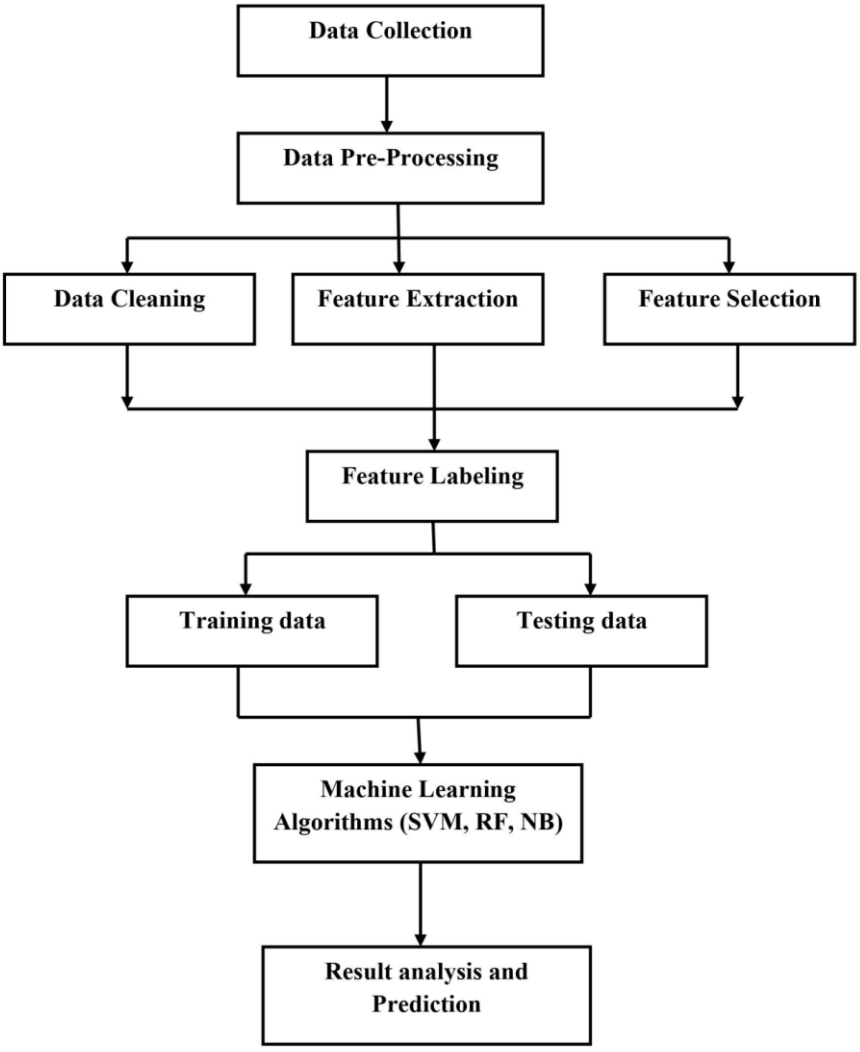

Figure 1: Work Flow of Proposed Work

2. LITERATURE SURVEY

The study conducted by Dr. D. Shoba and Dr. G. Suganthi [5] focuses on the association between WLB and satisfaction with work involving school teachers in Villupuram District. The researchers employed structural equation modeling to empirically analyze this relationship. It reveals that the variables of various Emotional based Intelligence, Organizational dedication and thoughts exhibit a favorable impact on the level of self satisfaction in job among teachers. The feature of WLB has a negative contact on the job satisfaction of instructors. These elements exert a direct impact on job satisfaction. The influence of job satisfaction on WLB is indirectly mediated by several factors, including work-life conflict, job flexibility, and the attitudes of teachers. Furthermore, it should be noted that these elements remain unaffected by the specific sort of educational institution in which educators are employed.

In another research article Harichitra and Kavitha [6] emphasize the importance of setting goals and excelling in both career and family domains in order to attain work-life balance. The utilization of certain methods and abilities, such as planning, organizing, and setting limitations, can be applied in both domestic and professional settings to attain a harmonious and gratifying equilibrium between one's personal and occupational spheres. It has been determined that Family Policy, the provision of the Welfare state, and the structure of the labour market play significant roles in determining diverse models of work and family balance and the resulting financial implications related with them. Additionally, the findings of the study indicate that employed women establish their priorities, leading to effective time management both in their personal lives and professional environments. Individuals endeavor to obtain assistance from their familial network. In addition, individuals endeavor to work at educational institutions in close proximity to their residence to minimize commuting duration.

Dr. Shweta Sharma et al [7]., studied "Scale Development: WLB of Women professions" aimed to create a range that is both valid and reliable. This was achieved by taking into account the important dimensions of WLB for women professionals employed in service sectors. Additionally, the study sought to explore the potential future implications of this scale across various sectors in India. An endeavor is undertaken to construct a Work-Life Balance (WLB) scale specifically tailored for women employees**.** A survey was undertaken, employing a self-designed questionnaire, among a sample of 188 individuals employed in various service sectors within the Madhya Pradesh region. This research endeavor has successfully identified a total of eight distinct components. Factors Affecting Employee Motivation: An Academic Perspective This study examines many factors that influence employee motivation within the workplace. The study specifically examines the effects of flexible working arrangements, welfare and recreational initiatives, work-life balance, job enrichment, grievance handling, job satisfaction, and family assistance. If these elements are appropriately addressed, it is quite likely that women professionals would have improved work-life balance.

Sayeda Meharunisa [8] explores "WLB and Stress Among Women Faculties at Higher Education Institutions in India," The objective of this study was to identify the many elements that contribute to job-related stress and to investigate the impact of such stress on the work-life balance of female faculty members inside higher education institutions in India. The study revealed that inadequate compensation and demanding work schedules emerged as the primary sources of stress in the workplace. Additionally, it has been shown that the presence of stress has resulted in a decline in the productivity of female faculty members. This, in turn, has led to financial difficulties that are negatively impacting their professional lives. Hence, it has been suggested that a positive correlation exists between stress and work-life.

In a study conducted by Sumathi and Velmurugan [9], Women employees in the arts and science colleges in the Coimbatore district are able to strike a work-life balance by putting in extra hours to do their assigned tasks on time, according to the authors of a study titled "WLB of Women Faculty in Arts and Science Colleges in the Coimbatore District". Female professional's workers can effectively balance their job and family responsibilities by implementing a strategic approach to their professional duties. Faculty members may experience a heightened sense of personal and career fulfillment when they effectively navigate the demands of work-life balance. This, in turn, can lead to an increase in their degree of commitment to their particular academic institutions. Any educational establishment has the potential to reach unprecedented levels of success through the dedication and expertise of its teaching members.

C. Muthulakshmi [10] aimed to investigate the primary obstacles encountered by teaching professionals in the arts and colleges of Tuticorin area in attaining a harmonious equilibrium among their personal and professional spheres. The report revealed that institutions should prioritize the implementation of more effective kid supervision strategies, surpassing the current efforts made by teaching staff members. Simultaneously, the teaching staff members hold high expectations for the attainment of equilibrium in this domain. Hence, it is imperative for management to allocate greater focus to this particular domain. In addition to this,

the management should pay particular attention to the implementation of flexible working hours. Incorporating Work-Life Balance methods into the yearly planning process of educational organizations has the prospective to provide a positive control on the well-being of employees.

Study conducted by Muthulakshmi [10], an investigation was undertaken to analyze the distinctions between Public and private sector banks in relation to the perspectives of women employees on work-life balance. The empirical findings indicate that the average scores of women employees in private sector banks are minimal than those in public sector banks. Moreover, a statistically significant disparity exists in the mean scores of female employees working in public and private sector banks. Therefore, the research findings indicate that the perception of work-life balance among female employees is contingent upon the specific industry in which they are working.

Sandhya and Ranjani [11] conducted a study to investigate the influence of WLB on the subjective well-being of individuals. The investigation utilized data from both male and female participants in nations belonging to the Organization for Economic Co-operation and Development. The author's findings indicate that the implementation of work-life balance policies has a positive impact on the overall life satisfaction of individuals, regardless of gender. Additionally, the author explores the concept of WLB elasticity in relative to life fulfillment. The disparity in the magnitude of the effect on life satisfaction resulting from a 1% alteration in work-life balance is more pronounced among men than to women. Traditionally, work-life balance concerns have been mostly associated with women rather than males. Ultimately, the findings suggest that the inclusion of a well-designed institutional framework that effectively addresses the work-life balance needs of both genders is crucial in promoting overall life happiness.

Stoilova, Ilieva-Trichkova, and Bieri [12]expected to explore the influence of individual and macro-level influences on the WLB of young men and women in various European nations. The findings of the study unveiled that there exist both disparities and commonalities in the manner in which education influences the equilibrium between job and personal life among young males and females. Moreover, the attainment of higher education is positively correlated with the inclination of men to prioritize work-life balance when selecting employment opportunities. Conversely, lower levels of education are associated with decreased likelihood among women to consider work-life balance as a significant factor in their job choices. Additionally, education is linked to reduced acceptance of traditional gender norms in both men and women, as well as a decrease in the amount of time spent on household chores. Nevertheless, the significance of work-life balance is diminished to a greater extent for men than for women as the proportion of family benefits increases. Additionally, males residing in conservative, Mediterranean, and post-socialist welfare regimes place a larger value on work-life balance compared to their counterparts in social-democratic regimes.

3. PROBLEM STATEMENT

In contemporary times, employers have raised their expectations of staff members, so imposing an escalating burden on employees to attain heightened outcomes. In contemporary society, individuals are confronted with a multitude of concurrent obligations, including professional duties, childcare, domestic chores, volunteer work, spousal commitments, and the care of aging parents. This confluence of responsibilities imposes significant strain on individuals, families, and the neighborhoods in which they are situated. The concept of WLB pertains to the establishment and sustenance of work environments that are conducive to the well-being of employees. By achieving a harmonious equilibrium between professional obligations and personal commitments, individuals can cultivate a sense of loyalty and enhance their productivity inside the workplace [13]. The maintenance of WLB is not solely crucial for individuals' personal well-being and interpersonal connections, but it can also enhance the efficacy of their work-related performance. In the contemporary business landscape, the attainment of work-life equilibrium is more challenging due to the rapid speed of operations. Therefore, it is imperative for educators to give careful consideration to establishing a healthy work-life balance. Therefore, a study was conducted on the area of WLB among teaching professionals in higher education within the Kumbakonam area. The present study introduces a machine learning methodology for the purpose of analyzing and interpreting data.

3.1Aim of the Study

The present investigation has encompassed individuals employed as educators within the realm of post-secondary education. The research has prioritized the scrutiny of the demographic information of the participants, alongside the investigation of the correlation between demographic attributes and the degree of faith in the field of education. This study includes an analysis that seeks to ascertain the notable disparity between the gender of the participants and their level of attitude towards the approach targeted at improving work-life balance in the workplace. Furthermore, this study investigates the correlation

between the marital status of participants and their attitudes towards the implementation of a work-life balance approach within the domestic sphere [14]. Moreover, the research investigates the relationship between the respondents' degree of job satisfaction and their stance towards work-life balance (WLB). The primary focus of this study has been on identifying the elements that determine the level of attitudes among respondents towards the teaching profession, as well as the factors that influence their attitude towards achieving work-life balance.

4. PROPOSED METHOD

The analysis of the collected data in the literature survey was conducted through the utilization of data mining techniques and statistical methodologies. This research uses a range of Machine Learning classification methods, such as the Random Forest classifier, Navie Bayes (NB) and Support Vector Machine, to examine and categorize the input data. A comparative analysis of the performance of several classifiers is conducted, followed by an evaluation of the results. The figure 1 explains the proposed work flow.

4.1Data set

A Google form was designed and utilized to gather data from employed women residing in the Kumbakonam district. The original dataset consists of 750 unique responses from a heterogeneous group of individuals, covering 25 attributes related to different elements of their professional and personal experiences. The data underwent a series of standard processes to ensure data consistency and survey response validity during the cleaning process. To ensure the specificity of the model, several qualities have been disregarded. Ultimately, 14 parameters were selected for inclusion in our research based on their usefulness. Our trained models utilize the history of an employee's treatment for stress-related diseases as a reference for prediction. Additionally, the "one hot encoding" technique is utilized to enable the representation of many fields that necessitate distinct parameters. The written responses were assigned numerical weights based on their level of importance. The value of 'yes' is commonly assigned as 1, 'no' as 0, and 'maybe' as 0.5. The cells containing 'NaN' (an abbreviation for "not a number") were substituted with the value of 0. The category data was transformed into numerical values by the utilization of a label encoder. Seventy percent of the responses were designated for the purpose of training the model, and the remaining 30 % were set aside for testing the model.

4.2Machine Learning Algorithms

Machine learning is a subfield within the domain of Artificial Intelligence (AI) that endows computers and systems with the capacity to autonomously acquire knowledge and enhance their performance based on prior experiences, without the need for explicit human programming. Machine learning is predicated upon the advancement of computational algorithms capable of autonomously retrieving data and acquiring knowledge. The utilization of intelligent systems in healthcare has shown to be highly advantageous due to the vast volume of available data. By appropriately inputting and training this data, a prediction model of exceptional accuracy can be developed. Moreover, such a model is devoid of human errors and significantly reduces the time needed for diagnostic procedures.

4.2.1 Data Pre-processing

Pre-processing is a crucial initial stage in the process of data analysis. The process encompasses data cleansing and noise removal techniques. A fundamental two-dimensional median filtering technique is employed to exclude undesired features from the raw data. The process encompasses tasks such as text cleaning, tokenization, and normalization.

4.2.2 Classification

In this procedure, primarily identify ML methodologies that are appropriate for our specific scenario. Our major objective is to determine the most appropriate prediction model for our specific requirements. The Random Forest (RF) , Support Vector Machine (SVM), and Gaussian Naïve Bayes (NB) Classifier have been considered for analysis. Each of these classifiers must undergo training and testing.

i. Classification using Random Forest (RF) algorithm

The RF Classifier is a classification algorithm that falls under the category of ensemble models. This implies that the system is composed of a set of n decision trees (DT). Furthermore, any of these trees is considered as an independent entity. In addition, a class prediction is provided by them. The majority vote determines the ultimate forecast of the entire algorithm. In this study, the Random Forest Classifier method was employed, which constructs decision trees based on the provided data points. In the context of decision tree models, when presented with new data points, the procedure entails generating predictions from each DT and then assigning the new data points to the category with the most votes. In this study, 80.1% of the available data was utilized for training purposes. The analysis focused on the relationship between the considered column values, represented by the x-axis, and the column labeled "WLB," represented by the y-axis. The resulting accuracy score obtained from this

analysis was found to be 75%. Figure 2 explains the classification work flow by Random forest,

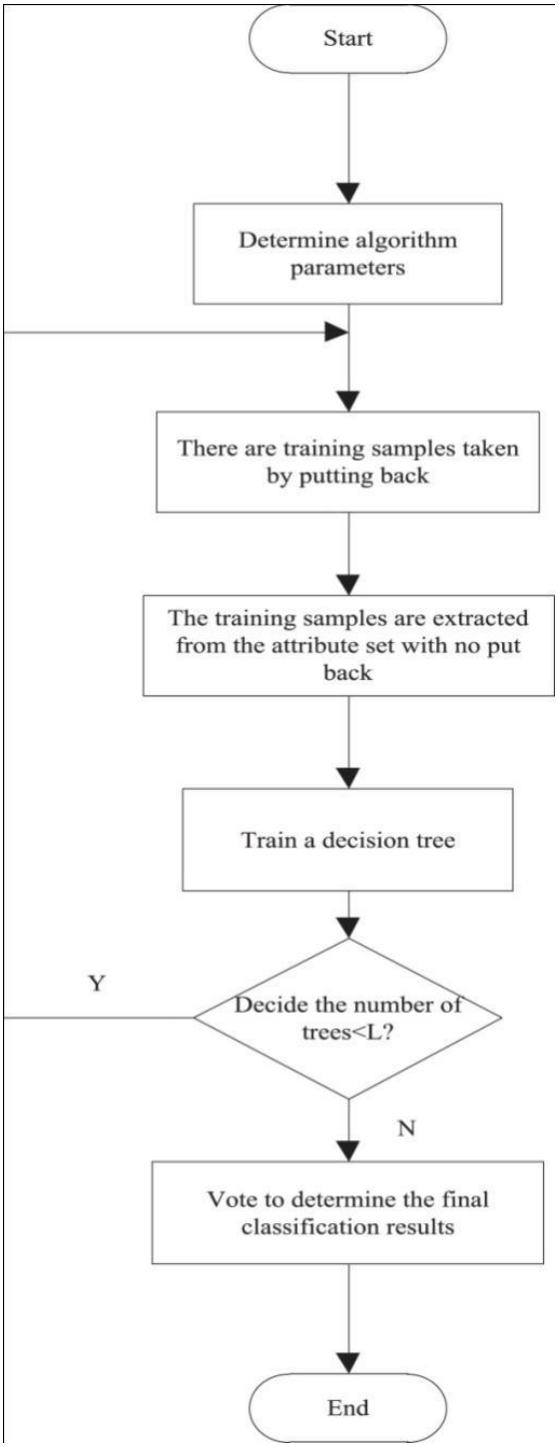

Figure 2: Classification by RF

Table 1: RF Classification

	Precision	Recall	F1-Score	Support
0	0.75	0.89	0.81	7325
1	0.45	0.22	0.3	2880
Accuracy			0.75	10205
Macro avg	0.6	0.56	0.56	10205
Weighted avg	0.66	0.7	0.67	10205

ii. Support Vector Machine (SVM)

After establishing our objectives, including assessing an employee's Work-Life Balance as a determinant of their likelihood to leave the organization, and doing data preparation and analysis, the subsequent step involves the development of a prediction model. In the context of employing supervised learning methods, it is necessary to have two distinct sets inside the dataset, namely the testing dataset and the training dataset. The utilization of a training dataset is necessary due to its inclusion of a classed target population, which subsequently facilitates the acquisition of new observations. Once the dataset has been obtained, it is imperative to establish a Testing dataset in order to enhance the accuracy of predictions. It is essential to test a standardized and consistent quantity of data against the qualities.

Support Vector Machines (SVM) is a prominent example of a supervised learning method within the field of Machine Learning. Additionally, the dataset is subjected to classification and regression analysis, which proves to be valuable for our research. Support Vector Machines (SVMs) are capable of performing both linear and non-linear classification tasks. Additionally, SVMs have the ability to implicitly translate their inputs into feature spaces with high dimensions. In this study, a linear Support Vector Machine (SVM) algorithm was employed to identify the nearest points on the lines representing the two classes, X and Y. These points, referred to as support vectors, play a crucial role in the SVM model. The Support Vector Machine (SVM) algorithm aims to optimize the separation between the hyperplane and the vectors, which are referred to as the margin. Through the use of this computation, wherein all relevant column values on the x-axis were compared against the column labeled "WLB" on the y-axis, with 71.5% accuracy was obtained. The Train dataset currently constitutes 80% of our whole dataset, a critical component for our predictive model to examine and understand the relationships among various attributes within our dataset, which consists of 10,205 observations. The test set comprises the 20% of the dataset. In order to authenticate our prediction model, it is crucial to quantify the errors between our anticipated and actual results, and assess the overall effectiveness of our prediction model using the remaining 2,551 data. Table 2 gives the classification report.

Table 2: SVM Classification

	Precision	Recall	F1-Score	Support
0	0.72	87	0.83	7299
1	0	0	0	2906
Accuracy			0.71	10205
Macro avg	0.36	0.5	0.42	10205
Weighted avg	0.51	0.72	0.6	10205

In order to ensure an equitable distribution of the target variable, it is necessary to appropriately split the dataset into separate test and train datasets. Additionally, this approach effectively mitigates the issue of disjointed subdivisions, which has the potential to impact the accuracy of our prediction outcomes. The target variable, referred to as "WLB" and used to define attrition, is a binary variable. It consists of 72% "0" values, representing "NO," and 28% "1" values, representing "YES".

iii. Navie Bayes (NB):

The classification algorithm utilized the classification report, which includes Precision, accuracy, Recall, and F1-Score to analyze the performance of the algorithm. Furthermore, we have employed a comparable training approach on

80% of our dataset, while reserving the remaining 20% for testing purposes. This evaluation yielded an accuracy score of 70.15%.

Table 3: NB Classification

	Precision	Recall	F1-Score	Support
0	0.72	0.85	0.78	7299
1				2906
Accuracy			0.65	10205
Macro avg	0.5	0.5	0.49	10205
Weighted avg	0.59	0.65	0.61	10205

Naïve Bayes classifiers are derived from Bayes' theorem. The algorithms within this family adhere to a shared premise, namely, the independence of classification between any pair of features. The approach relies on the Naïve Bayes algorithm.

$$P\left(\frac{M}{N}\right) = \left(\frac{P(M \cap N)}{P(M)}\right) \quad (1.1)$$

In this study, the multinomial Naïve Bayes algorithm is employed, wherein the method's computations are predicated on frequency-based calculations. The Naïve Bayes Algorithm is employed in this study to analyze the relationship between the column values on the x-axis and the column labeled "WLB" on the y-axis. This algorithm calculates the revised likelihood of a data point being plotted, taking into account the incorporation of new information from another axis. The obtained accuracy score was 65% shown in table 3. The work flow of NB Classifier is shown in figure 3.

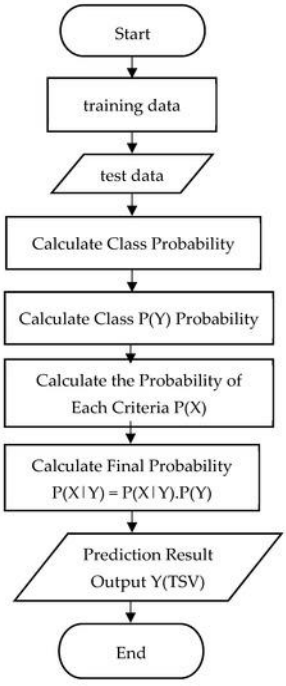

Figure 3: Work flow of Navie Bayes

5. Result Analysis

5.1Performance analysis metrics

Accuracy:

Accuracy is a quantitative measure that evaluates the ratio of correctly classified data examples to the total number of data instances.

$$Accuracy = \frac{TrueNegative+TruePositive}{Truepositive+FalsePositive+TrueNegative+FalseNegative} (1.2)$$

Precision:
The precision is commonly utilized in the domains of statistics and machine learning to evaluate the effectiveness of a model, particularly in the realm of binary classification tasks. The metric measures the proportion of correct positive predictions to the total number of positive predictions produced by the model.

$$Precision = \frac{TruePositive}{TruePositive+FalsePositive} \quad 1.3)$$

Recall:
Recall, alternatively referred to as sensitivity constitutes a significant performance parameter employed in binary classification scenarios. The metric quantifies the ratio of correctly predicted positive cases by the model relative to the total number of positive examples in the dataset.

$$Recall = \frac{TruePositive}{TruePositive+FalseNegative} \quad (1.4)$$

F1-Score:
The F1 score is a widely utilized performance indicator employed in the context of binary classification tasks. The metric integrates both precision and recall measures, yielding a comprehensive assessment of a model's effectiveness. The F1 score is particularly valuable in scenarios when the dataset exhibits class imbalance, which refers to a situation where one class is represented by a disproportionately larger number of instances compared to the other class. The classification of quality measures are given in table 4 and figure 4. From this the proposed Random Forest classifier achieves 75 % which is higher than the other two methods.

$$F1 - Score = 2\frac{(Precision*Recall)}{Precision+Recall}(1.5)$$

Table 4: Performance Comparison of Proposed methods

	Precision	Recall	F1 Score	Accuracy
Random Forest	75	89	81	75
Support Vector Machine	72	87	83	71.5
Navie Bayes	72	85	78	65

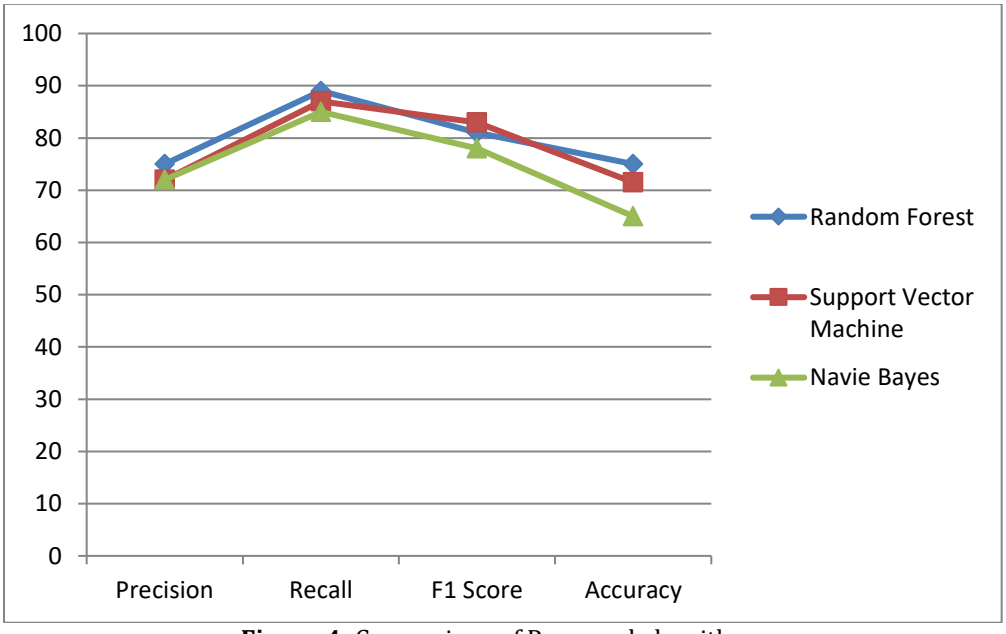

Figure 4: Comparison of Proposed algorithms

5.2Classification based on factors motivating to work
Figure 5 presents the classifications of respondents based on the elements that motivate them to work, as presented by the study. Out of the total sample size of 131 participants, it was found that 23% of the respondents were driven by personal pleasure, 36% were motivated by financial independence, and 41% were motivated by the desire to assist their family. Table 5 and figure 5 gives the classification by RF method with the factors motivating to WLB.

Table 5: Factors prediction by Random Forest

Factors	no of responds	Percentage of responds
Personal Satisfaction	30	23
Financial Independence	47	36
To support Family	54	41
Constructive utilization of time	0	0

Figure 5: Factors motivating to work

5.3Classification on ability to balance WLB

The categories of respondents based on their capacity to balance work-life are presented in Table 6. Out of the total sample size of 131 participants, it was found that 83% of respondents reported being capable of effectively managing the balance between their professional and personal lives. Conversely, 17% of respondents indicated facing challenges in achieving a satisfactory work-life equilibrium. The ability to maintain WLB is predicted using the Random Forest (RF) classifier, which takes into account the parameters outlined in Table 6 and Figure 6.

Table 6: Ability classification to work

Factor	no of responds	Percentage of responds
Yes	109	83
No	22	17

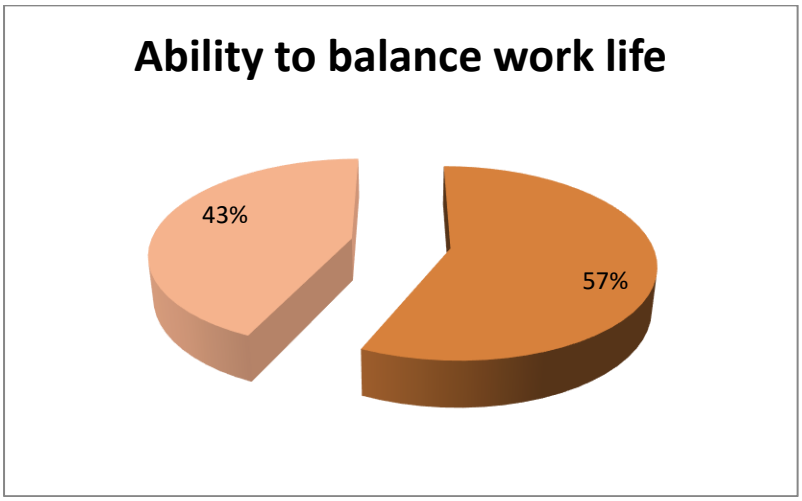

Figure 6: Factors classification to work

5.4Classification on factors for maintaining WLB

The data presented in Table 4.10 provides an overview of the categorizations of participants according to the elements deemed significant for the maintenance of work-life balance. Out of the total sample size of 131 participants, it was found that 51% of respondents saw help from family members as a crucial feature in preserving work-life balance (WLB). Additionally, 1% of respondents identified time off during holidays as an important aspect, while 32% of respondents emphasized the significance of support from colleagues in achieving WLB. The RF classification of elements aimed at enhancing work-life balance (WLB) is presented in Table 7 and Figure 7.

Table 7: Factor classification to improve WLB

Factors	no of responds	Percentage of responds
More Flexible Working hours	2	1.5
Support from family members	67	51
time off during emergencies	5	3.8
Time of during holidays	15	1.1
Support from Colleagues	42	32

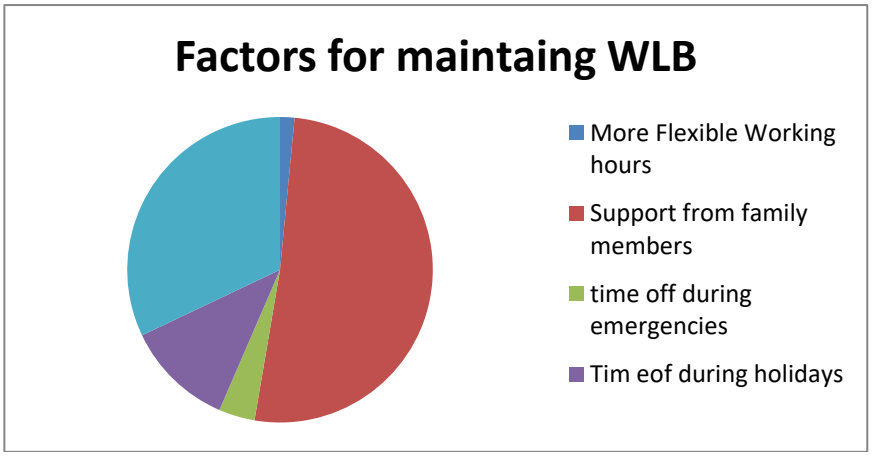

Figure 7: Factors comparison for WLB

6. CONCLUSION AND FUTURE SCOPE

The enhancement of job satisfaction among employees, the alignment of managerial conduct, effective communication between superiors and subordinates, and the cultivation of positive work environments are factors that can contribute to improved employee performance within organizations. Consequently, these factors can have a direct impact on overall business performance.

The attainment of a favorable equilibrium between professional obligations and familial duties is a significant preoccupation for individuals across various industries. Failure to adequately maintain these two factors might result in an imbalance between work and personal life, increased levels of stress, and decreased job satisfaction. If such a situation occurs with teachers, it will have an impact on pupils' education. Hence, the purpose of this study is to investigate the phenomenon of work-life balance among female faculty members in college settings.

The education system is progressively getting more competitive. Teachers should allocate extra time to organizational tasks and dedicate more time after returning home to complete their job and prepare for the following day. This study aimed to identify the multiple elements contributing to work-life imbalance and establish a relationship between work-life balance and job satisfaction. If an organization is able to offer work-life balance to its faculty members, it has the potential to enhance their job happiness. Consequently, this facilitates the firm in attaining unprecedented levels of success. The findings of this study indicate that faculty members are able to maintain a satisfactory work-life balance, even in the face of significant work-related pressures. If an imbalance between work and personal life arises, it is imperative for management to implement appropriate measures to establish and maintain a work-life balance, ultimately resulting in the provision of high-quality education for students.

The machine Learning algorithms are used to classify the input factors Random Forest, Navie Bayes and SVM is used, their results in terms of accuracy is measures among three the Random Forest classify with high accuracy of 75 %. For further factor based analysis the RF classifier is used.

After analyzing the factor the proper support has to be given to the employees by the organizations such as refreshment programs, counseling, educational tours etc in future.

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