

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY JNANA  
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*A Synopsis on*

**“Salary Prediction”**

Submitted for the Final Year Project Work

**Submitted by**

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*Under the Guidance of*

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**Academic Year: 2024–2025**

**Declaration by Students**

We, the undersigned students Prince Chaudhary(1NT22CS133), Mohan Acharya (1NT22CS116) and Pradeep Badu (1NT22CS133) hereby declare that we are fully aware of the project conduction procedures and evaluation rubrics as prescribed by the department. We understand that the project work will be evaluated through continuous assessment across the defined phases.

Name of the Student	Signature
Prince Chaudhary	
Mohan Acharya	
Pradeep Badu	

### **Confirmation by Guide**

I, ....., hereby declare that I shall guide the above-mentioned students in the project entitled “**Salary Prediction**” and will ensure that the project work is carried out under my supervision and submitted as per the academic requirements for the academic year **2024–2025**.

*Signature of the Guide*

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## **1.Introduction**

With the growing complexity of job markets, predicting employee salaries has become a valuable tool for both organizations and job seekers. Traditional estimation methods often rely on limited factors and may not capture hidden patterns in data. This project addresses the problem of inaccurate or generalized salary estimation by leveraging machine learning algorithms. By analyzing factors such as experience, education, and job role, the model provides more precise salary predictions. Such predictions can help employers design fair compensation structures and assist professionals in making informed career decisions.

## **2.Literature Survey**

Several research works, articles, and journals have explored the use of machine learning for salary prediction. Many studies have focused on regression-based models and decision trees, while recent works highlight the effectiveness of ensemble methods and deep learning for improved accuracy. Previous approaches often relied on limited features or static datasets, which reduced their adaptability across industries. For instance, studies emphasizing linear regression showed good results but struggled with complex, non-linear patterns. Inspired by such findings, our project builds upon these methods by incorporating multiple algorithms and diverse features to enhance prediction reliability and applicability.

## **3.Limitations of the Existing Work and Motivation**

Existing salary prediction systems often suffer from limited datasets, reliance on few input features, and lack of adaptability across different industries or job roles. Many approaches also struggle with handling non-linear relationships between variables such as experience, education, and location. These limitations result in less accurate and generalized predictions. Motivated by the need for a more reliable and data-driven solution, this project applies machine learning algorithms to capture hidden patterns in salary data. The goal is to provide accurate predictions that can benefit both job seekers and employers in making informed career and compensation decisions.

## 4.Objectives of the Project

- a. To develop a salary prediction model using machine learning algorithms.
- b. To analyse the influence of factors such as experience, education, job role, and location on salary.
- c. To compare the performance of different ML algorithms (e.g., Linear Regression, Decision Trees, Random Forest, etc.) for prediction accuracy.
- d. To provide a reliable tool that can assist employers in designing fair salary structures and help job seekers make informed career decisions.

## 5.Proposed Methodology

The proposed system applies machine learning techniques to predict salaries based on various influencing factors. The methodology follows a structured approach to ensure accurate data processing, feature selection, and model evaluation.

### System Architecture/Block Diagram:

A typical architecture includes the following components:

Dataset → Data Preprocessing → Feature Selection → Machine Learning Model → Model Training & Testing → Salary Prediction Output

### Workflow / Process Steps:

1. Collect and preprocess salary datasets (cleaning, handling missing values, encoding categorical variables, normalization).
2. Identify and select relevant features such as experience, education, job role, industry, and location.
3. Train multiple machine learning algorithms (e.g., Linear Regression, Decision Trees, Random Forest, Support Vector Machines).
4. Evaluate models using performance metrics like Mean Squared Error (MSE),  $R^2$  Score, and Accuracy.
5. Select the best-performing model for deployment to predict salaries for new input data.

### Hardware Used:

No physical hardware is required for this project, as it is fully software-based.

**Software and Programming Tools:**

**Programming Language:** Python

**Libraries:** Pandas, NumPy, Scikit-learn, Matplotlib, Seaborn

**IDE/Platform:** Jupyter Notebook / Google Colab

**Algorithms or Techniques Implemented:**

1. Linear Regression
2. Decision Trees
3. Random Forest
4. Support Vector Machines (SVM)

The system leverages supervised learning algorithms to map input features to salary values, ensuring accurate and scalable predictions.

## 6.References

List all the books, journal papers, websites, and other sources you referred to, using a proper citation format (IEEE or APA recommended). Each reference should include author(s), title, publication/journal name, year, and publisher or URL.

### ***Example (IEEE Style):***

- [1].J. Smith, *Intelligent Transportation Systems*, McGraw-Hill, 2020.
- [2].A. Sharma and P. Verma, "Adaptive Traffic Signal Control using ML," *IEEE Access*, vol. 9, pp. 45678–45689, 2021.