



# **Case Study**

Employee Attrition Management System



# Case Study

We developed an intelligent employee attrition management system using advanced AI, machine learning, and deep learning algorithms.



## Summary

The client sought our services to build a custom employee attrition management solution that would integrate with their existing HR management system. The new system included features such as employee feedback surveys, performance tracking, and analytics tools to identify at-risk employees.

## Challenges

Finding employees who are at high risk of attrition is always difficult to manage within the organization. To solve this problem, we built a system that enables HR reps to engage with employees and retain them proactively. It provided a more personalized employee experience by using predictive analytics to recommend career paths, and professional development programs or optimizing a career site based on prior applicant actions.

## Solution

We prepared the data using panda and numpy normalise with a rule-based system. We explored the data and found cor-relation with parameters in a graphical view. It helped find the attrition effect, one vs other parameter. We developed a system which helps to model and train data using the following algorithms:

### Industry

IT Services

### Users

Recruitment Personnel, HR Managers, HR Executives

### Technologies

Python, MongoDB, jQuery, HTML5, CSS, Machine Learning, Artificial Intelligence, Deep Learning, Natural Language Processing, IBM Watson

### Team Size

8 Oodlites



- Logistic Regression
- Random Forest
- Support Vector Machine

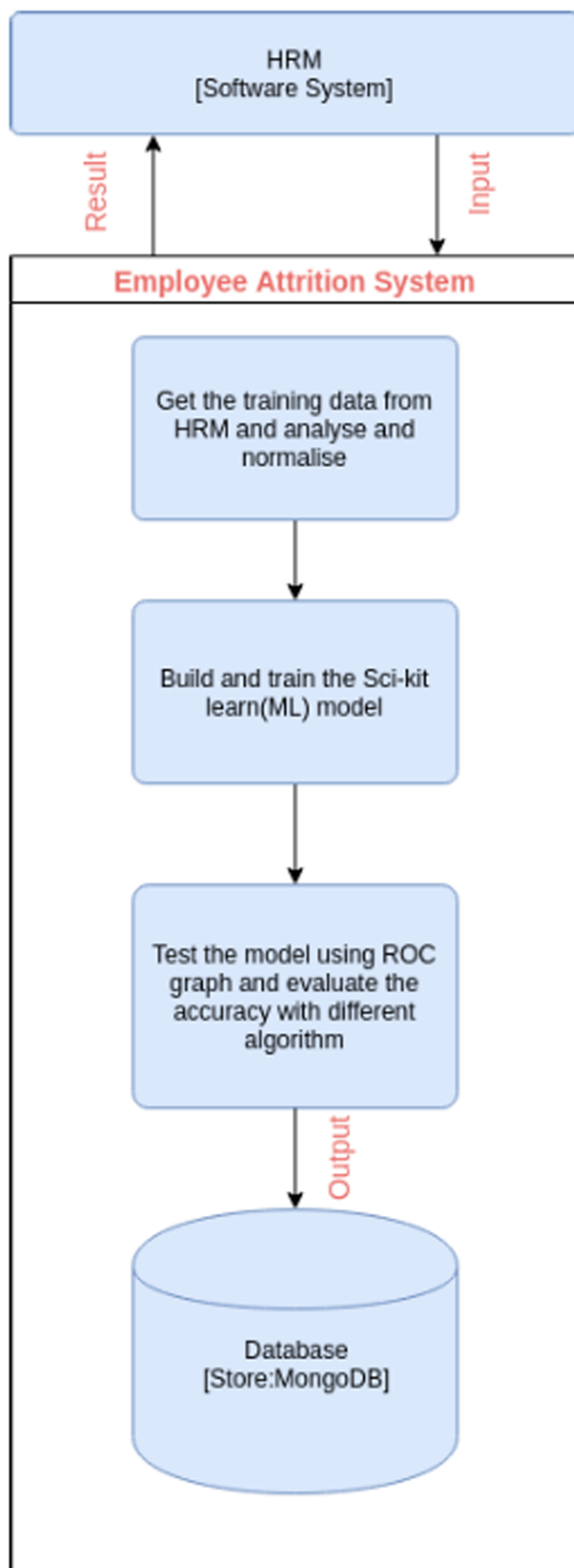
We also developed restful APIs to accept the input and provide response to the HRM module.

## Data Fields

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>1. Age</div> <div>2. Attrition</div> <div>3. BusinessTravel</div> <div>4. DailyRate</div> <div>5. Department</div> <div>6. DistanceFromHome</div> <div>7. Education</div> <div>8. EducationField</div> <div>9.EmployeeCount (could be number of people mentoring)</div> <div>10.EmployeeNumber (employment number)</div> <div>11.EnvironmentSatisfaction</div> <div>12.Gender</div> <div>13.HourlyRate</div> <div>14.JobInvolvement</div> <div>15.JobLevel</div> <div>16.JobRole</div> <div>17.JobSatisfaction</div> | <div>18. MaritalStatus</div> <div>19. MonthlyIncome</div> <div>20. MonthlyRate</div> <div>21. NumCompaniesWorked</div> <div>22. OverTime</div> <div>23. PercentSalaryHike</div> <div>24. PerformanceRating</div> <div>25. RelationshipSatisfaction</div> <div>26. StandardHours</div> <div>27. SocketOptionLevel</div> <div>28. TotalWorkingYears</div> <div>29. TrainingTimesLastYear</div> <div>30. WorkLifeBalance</div> <div>31. YearsAtCompany</div> <div>32. YearsInCurrentRole</div> <div>33. YearsSinceLastPromotion</div> <div>34. YearsWithCurrManager</div> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



# Context Diagram



## Steps to Build this System

- Data preparation using panda and numpy
- Database modeling and design(MySQL is enough because we will have structured data in CSV or will be coming from HRM module)
- Data validation
- Data normalisation if required
- Explore the data and find cor-relation with parameters in graphical view. This will help to find the attrition effect one vs other parameter
- Modeling and training the data using algorithms that best suits(Logistic Regression, Random Forest, and Support Vector Machine)
- Testing the performance using ROC graph
- Develop restful API to accept the input and provide response to HRM module



## Results Delivered

We developed an intelligent system capable of constantly analyzing data and making predictions whenever it achieves a high enough accuracy. This system helps find out employees of high attrition risk and suggest a career path or professional development programs to retain.

### About Oodles ERP

Oodles ERP is a software services company that offers complete enterprise software development services with a focus on implementing next-gen technologies. With a proven track record in custom ERP development, we have successfully completed 50+ software projects related to CRM, HRM, inventory/warehouse, eCommerce, supply chain, and logistics. We are mainly focused on helping startups and small-to-medium enterprises to achieve digital transformation through cost-effective ERP software solutions.

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