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Visvesvaraya Technological University, Belgaum



“Bio-Medical Application on Predicting Blood Donors Using Machine Learning Techniques”

Thesis submitted in partial fulfillment of curriculum prescribed for the award of the degree of

**BACHELOR OF ENGINEERING
IN
COMPUTER SCIENCE AND ENGINEERING**

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CERTIFICATE

This is to certify that the work entitled “**Bio-Medical Application on Predicting Blood Donors Using Machine Learning Techniques**” is a bonafied work carried out by **Abhishek Sajjan, Sai Keshav S, and Sanganna Hallad** in partial fulfillment of the award of the degree of **Bachelor of Engineering in Computer Science and Engineering of Visvesvaraya Technological University, Belgaum during the year 2017-18**. It is certified that all corrections / suggestions indicated during CIE have been incorporated in the report. The project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the Bachelor of Engineering degree.

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DECLARATION

We, hereby declare that the project work entitled “Bio Medical Application for predicting blood donors using Machine Learning techniques” has been independently carried out by us under the guidance of Dr. M. P. Pushpalatha, Professor, Department of Computer Science and Engineering, Sri Jayachamarajendra College Of Engineering, Mysuru is a record of an original work done by us and this project work is submitted in the partial fulfillment of the award of the degree of Bachelor of Engineering in Computer Science and Engineering of Vishvesvaraya Technological University, Belgaum during year 2017-18. The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree or diploma.

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ABSTRACT

Blood donation is an essential activity to acquire blood as a raw material into the blood supply chain. It must be managed effectively together with other processes in blood management. The increasing demand for sophisticated, intelligent systems in the field of healthcare leads to a need for introduction of automation of processes.

The area of transfusion medicine, specifically blood donation services require this implementation at the earliest. The present situation is one where most processes in blood donation services are manual and the demand for blood is constantly on the rise, augmented by declining donation rates.

Hence, an intelligent system that can integrate major operations involved, make efficient decisions and improve communication is highly crucial.

A system of this sort would involve machine learning algorithms for efficient donor selection and a notification system. The motivation for this research is that blood demand is gradually increasing by the day due to needed transfusions due to accidents, surgeries, diseases etc.

Accurate prediction of the number of blood donors can help medical professionals know the future supply of blood and plan accordingly to entice voluntary blood donors to meet demand. It must be managed effectively together with other processes in blood management. In this research, the pattern of blood donors' behaviours based on factors influencing blood donation decision is conducted using online questionnaire.

These factors, i.e., altruistic values, knowledge in blood donation, perceived risks, attitudes towards blood donation, and intention to donate blood, are analysed to find out the possibilities for individuals to become blood donors.

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TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION TO THE PROBLEM DOMAIN	1
1.2 STATEMENT OF THE PROBLEM	4
1.3 OBJECTIVES OF THE PROJECT WORK	4
1.4 APPLICATIONS	5
1.5 EXISTING SOLUTION METHODS	6
1.6 PROPOSED SOLUTION METHODS	10
1.7 TIME SCHEDULE FOR THE COMPLETION OF PROJECT	13

CHAPTER 2: LITERATURE SURVEY

2.1 Predicting Blood Donations using Machine Learning techniques	14
2.2 A study on automation of blood donor classification and notification techniques	14
2.3 Blood Donor Classification using Neural Network and Decision Tree techniques	15
2.4 Predicting willingness to Donate Blood	15
2.5 Predicting a donor's likelihood of donating blood	16

CHAPTER 3: SYSTEM REQUIREMENTS AND ANALYSIS

3.1 Input Requirements	17
3.2 Output Requirements	17
3.3 Specific Requirements	18
3.4 Functional Requirements	18
3.5 Non-Functional Requirements	19
3.6 Hardware Specifications	19
3.7 Software Requirements	19

CHAPTER 4: TOOLS AND TECHNOLOGY USED

4.1 Linux	20
4.2 Python	20
4.3 Google Forms	21
4.4 CSV	22
4.5 MySQLdb	22
4.6 phpMyAdmin	23

CHAPTER 5: SYSTEM DESIGN..... 25

5.1 Software design.....	27
5.1.1 Naïve Bayes.....	27
5.1.2 KNN.....	31

CHAPTER 6: SYSTEM IMPLEMENTATION

6.1 Creating Data-Set	34
6.2 Classification	40
6.2.1 Handle Data	41
6.2.2 Summarize Data	42
6.2.3 Make a Prediction	45
6.2.4 Make Predictions	47
6.2.5 Get Accuracy	48

CHAPTER 7: SYSTEM TESTING AND RESULTS ANALYSIS

7.1 Result Analysis and Discussion.....	49
7.1.1 Naïve Bayes.....	49
7.1.2 KNN.....	54
7.2 Screenshots of the output.....	57

7.3 System Testing.....	59
7.3.1 White-box testing.....	59
7.3.2 Black-box testing.....	60

CHAPTER 8: CONCLUSION AND FUTURE WORK

8.1 Conclusion	61
8.2 Future Work	62

APPENDIX A: PROJECT TEAM DETAILS.....	63
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APPENDIX B: COs, POs AND PSOs MAPPING FOR PROJECT.....	64
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REFERENCES.....	65
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LIST OF FIGURES

1. Classification using Naive Bayes	11
2. Workflow model of proposed method	12
3. Schedule of the project	13
4. Workflow of the system.....	26
5. Bayes theorem formula.....	27
6. Flowchart for Bayes.....	30
7. Distance formula for KNN.....	31
8. Flowchart for KNN.....	33
9. Google form to enter donors' personal information (Part 1)	35
10. Google form to enter donors' personal information (Part 2)	36
11. Google form to enter donors' personal information (Part 3)	36
12. Questionnaire (Part 1)	37
13. Questionnaire (Part 2)	37
14. Questionnaire (Part 3)	38
15. Questionnaire (Part 4)	38
16. Questionnaire (Part 5)	39
17. Questionnaire (Part 6)	39
18. Loading Data-Set	49
19. Splitting Data-Set	50
20. Separating instances	51
21. Summarizing attributes	51
22. Summarizing by class values	52
23. Calculating probabilities for each class	52
24. Predictions	53
25. Calculating accuracy	53
26. Splitting dataset into training and testing set.....	54
27. Calculating distance.....	55
28. Calculating Accuracy.....	56
29. Login Page	57
30. Home Page	57
31. Sample Results	58
32. Database	58