**SHRI VISHNU ENGINEERING COLLEGE FOR WOMEN:: BHIMAVARAM**

**(AUTONOMOUS)**

**DEPARTMENT OF CSE**

**Academic Year: 2022-23: IV B. Tech II Semester**

**B. Tech - PROJECT WORK: ABSTRACT**

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| **Name of the Class / Section** | IV B.Tech CSE-B | | |
| **Batch Number** | B7 | | |
| **Project Domain / Technology** | Machine Learning using Python | | |
| **Project Title** | Early prediction of low birth weight (LBW) cases using Machine Learning approach. | | |
| **Guide Name** | Mrs.K.RATNA KUMARI | | |
| **Students Registered** | **Registered Number** | **Student Name** | **Student**  **Signature** |
| 19B01A0567 | KARRI HEMA HARSHITHA |  |
| 19B01A0574 | KOMALI ARTHI |  |
| 19B01A05B4 | MUDUNURI TULASI LAKSHMI |  |
| 19B01A05C6 | NANDIKAM LAKSHMI SAI AKHILA |  |
| 20B05A0511 | NARIBOINA VANAJA |  |

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| **Signature of**  **Internal Project Guide** | **Signature of**  **B.Tech Project – Coordinator** | **Signature of**  **Head of the Department** |

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| **Abstract of the Project ( In 200 words)** | |
| The main objective of this application is to classify whether the baby belongs to Low Birth Weight or not belongs to Low Birth Weight using machine learning algorithms.  Low Birth weight (LBW) acts as an indicator of sickness in newborn babies. LBW is closely associated with infant mortality as well as various health outcomes later in life. Various studies show a strong correlation between maternal health during pregnancy and the child’s birth weight. This manuscript exploits machine learning techniques to gain useful information from health indicators of pregnant women for early detection of potential LBW cases. The forecasting problem has been reformulated as a classiﬁcation problem between LBW and NOT-LBW classes using supervised Machine learning for LBW detection as a binary machine classiﬁcation problem. Expectedly, the proposed model achieved better accuracy. Indian healthcare data was used to construct decision rules to be extrapolated to predictive healthcare in smart cities. A screening tool based on the decision model is developed to assist healthcare professionals in Obstetrics and Gynecology (OBG). | |
| **Existing System (If any) – Features & Drawbacks** | |
| In the existing system, the model used is Logistic Regression to estimate whether the baby belongs to the Low Birth Weight or not belongs to Low Birth. This model employs low accuracy and inaccurate results. The disadvantages are low accuracy, expensive, low reliability, and inaccurate.  **Proposed System – Features**  **List of objectives/features that are planned to implement.** | |
| In the proposed system, we implement supervised machine learning algorithms like XGBoost Classifier, Random Forest Classifier, Support Vector Classifier, and Decision Tree Classifier for the prediction of low Birth Weight babies. The advantages are high accuracy, time-saving, not requiring highly trained staff and high reliability. This is used in hospitals, Humanitarian aid.  **About Dataset:**  Our Dataset contains 93 rows and 10 columns. All the records in the dataset are of type numerical data. | |
| **(i)Functional Requirements**  **(ii) Non Functional Requirements**  **(iii) Software & Hardware Requirements** | |
| **Functional Requirements:**   * Data Collection * Data Preprocessing * Training and Testing * Modeling * Predicting   **Non-Functional Requirements:**   * Logistic Regression * Random Forest * Neural Networks * XG Boost * Decision tree * Support vector machine * Frontend pages development   **Software Requirements:**   * Operating System : Windows 7+ * Server-side Script : Python 3.6+ * IDE : PyCharm. * Libraries Used : Pandas, Numpy, Matplotlib, OS.   **Hardware Requirements :** Processor : I3/Intel Processor  * RAM : 4GB (min) * Hard Disk : 128 GB * Keyboard : Standard Windows Keyboard * Mouse : Two or Three Button Mouse * Monitor : Any | |
| Literature Survey | | [1] World Health Organization-1992, International statistical classiﬁcation of diseases and related health problems, Tenth revision, Geneva, World Health Organization.  [2] Kramer MS. Determinants of low birth weight: methodological assessment and meta-analysis. Bull World Health Organ. 1987; 65(5):663-737. PMID: 3322602; PMCID: PMC2491072.  [3] Vega J, Sáez G, Smith M, Agurto M, Morris NM. Factores de riesgo para bajo peso al nacer y retardo de crecimiento intrauterino en Santiago de Chile [Risk factors for low birth weight and intrauterine growth retardation in Santiago, Chile]. Rev Med Chil. 1993 Oct; 121(10):1210-9. Spanish. PMID: 8191127. | |
| **Modules** | | **Expected date of completion** | |
| Importing libraries, loading the dataset, and data cleaning. | | 20-11-2022 | |
| Feature Engineering, Exploratory Data Analysis. | | 25-11-2022 | |
| Frontend pages using HTML. | | 03-12-2022 | |
| Label Encoding, Splitting the data | | 15-12-2022 | |
| Predicting the accuracy of models | | 12-01-2023 | |
| Testing the project | | 07-02-2023 | |
| Project Report | | 11-02-2023 | |