

**Project Charter Document**



**Project Name:**  Inventory of Steel Rods

**Department:** Analytics Team

**Focus Area:** Business understanding, data understanding, data preparation

**Process:** CRISP-ML(Q) – Cross Industry Standard Process for Machine Learning with Quality Assurance



**Prepared By**

|  |  |
| --- | --- |
| **Document Owner(s)** | **Project/Organization Role** |
| Joo Zhin Mei (Nancssee) | Intern |
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# Project Charter Version Control

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| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Change Description** |
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**Confidential**

Document1

Last printed on 3/23/2020 11:48:00 AM

# TABLE OF CONTENTS

1. **PROJECT CHARTER PURPOSE 3**
2. **PROJECT EXECUTIVE SUMMARY 3**
3. **PROJECT OVERVIEW 3**
4. **PROJECT SCOPE 3**
   1. Goals and Objectives 3
   2. Departmental Statements of Work (SOW) 3
   3. Organizational Impacts 3
   4. Project Deliverables 3
   5. Deliverables Out of Scope 3
   6. Project Estimated Costs & Duration 3
5. **PROJECT CONDITIONS 3**
   1. Project Assumptions 3
   2. Project Issues 3
   3. Project Risks 3
   4. Project Constraints 3
6. **PROJECT STRUCTURE APPROACH 3**
7. **PROJECT TEAM ORGANIZATION PLANS 3**
8. **PROJECT REFERENCES 3**
9. **APPROVALS 3**
10. **APPENDICES 3**
    1. Document Guidelines 3
    2. Project Charter Document Sections Omitted 3

# 1 PROJECT CHARTER PURPOSE



# 2 PROJECT EXECUTIVE SUMMARY

* project goals
* objectives
* scope
* assumptions
* risk
* timeline
* approach
* organization



# 3 PROJECT OVERVIEW



# 4 PROJECT SCOPE

## 4.1 Goals and Objectives

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| --- | --- |
| **Goals** | **Objectives** |
| 1. To reduce the underutilization of offcuts steel rods by at least 35%. 2. Minimize the manual calculations on using inventory. | 1. Minimize the underutilization of offcuts rods. 2. Maximize the profitability. |

## 4.2 Departmental Statements of Work (SOW)

|  |  |  |
| --- | --- | --- |
| **Departmental SOW** | **Owner/Prime** | **Due Date/Sequence** |
| Business understanding | Joo Zhin Mei (Nancssee) | 12/10/2023 |
| Exploratory data analysis (EDA) | Joo Zhin Mei (Nancssee) | 15/10/2023 |
| Data cleaning/preparation | Joo Zhin Mei (Nancssee) | 20/10/2023 |

## 4.3 Organizational Impacts

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| --- | --- |
| **Organization** | **Impact to and Participation of**  **Organization** |
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## 4.4 Project Deliverables

|  |  |
| --- | --- |
| **Milestone** | **Deliverable** |
| 1. Business Understanding | ● Define business problem, objectives, constraints and success criteria. |
| 2. EDA | ● Exploratory data analysis on data including the four business moments and graphs analysis. |
| 3. Data Cleaning/Preparation | ● Clean and pre-process data with:  1) Missing values imputation  2) Zero variance handling  3) Label encoding  4) Transformation  5) Feature scaling  6) Outlier treatment  7) Required features selection  8) Duplicates handling in columns and rows |

**4.5 Deliverables Out of Scope**

## 4.6 Project Estimated Duration

|  |  |  |  |
| --- | --- | --- | --- |
| **Project**  **Milestone** | **Date**  **Estimate** | **Deliverable(s) Included** | **Confidence Level** |
| Business Understanding | 12/10/2023 | Business problem, objectives, constraints and success criteria. | Moderate |
| EDA | 15/10/2023 | Exploratory data analysis: The four business moments and graphs analysis. | Moderate |
| Data Cleaning/Preparation | 20/10/2023 | Cleaned and pre-processed data | Low |



# 5 PROJECT CONDITIONS

**5.1 Project Assumptions**

## 5.2 Project Issues

**Priority Criteria**

1. − High-priority/critical-path issue; requires immediate follow-up and resolution.
2. − Medium-priority issue; requires follow-up before completion of next project milestone.
3. − Low-priority issue; to be resolved prior to project completion.
4. − Closed issue.

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| --- | --- | --- | --- | --- | --- |
| **#** | **Date** | **Priority** | **Owner** | **Description** | **Status & Resolution** |
| 1 | 14/10/23 | 4 | Joo Zhin Mei (Nancssee) | Abnormal data preparation process outcome. | Solved by re-organized the sequence of data preparation steps. |
| 2 | 17/10/23 | 4 | Joo Zhin Mei (Nancssee) | Wrong features selection in data preparation. | Solved by re-select correct features and re-do all data preparation steps with revised sequence. |

## 5.3 Project Risks

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| --- | --- | --- | --- | --- |
| **#** | **Risk Area** | **Likelihood** | **Risk**  **Owner** | **Project Impact-Mitigation**  **Plan** |
| 1 | Data integrity | High | Joo Zhin Mei (Nancssee) | 1. Consult the expert during preparation process. 2. Searching online for help and solutions. |
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## 5.4 Project Constraints

1) Maximize manual calculations in inventory use.

2) Lack of inventory usage planning and organization.



# 6 Project Team Organization Plans

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| --- | --- | --- |
| **Project Team Role** | **Project Team Member(s)** | **Responsibilities** |
| Data analytic intern | Joo Zhin Mei (Nancssee) | Business understanding, EDA, data cleaning/preparation. |
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# 7 PROJECT REFERENCES

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| --- | --- |
| **Milestone** | **Deliverable** |
| Business Understanding | 1. A E JEEVA (Project Owner) 2. Searching online for help and solutions. 3. Cutting stock problem   https://en.m.wikipedia.org/wiki/Cutting\_stock\_problem#:~:text=In%20operations%20research%2C%20the%20cutting,arises%20from%20applications%20in%20industry.   1. Solving One-Dimensional Cutting Stock Problems with the Deep Reinforcement Learning   https://www.mdpi.com/2227-7390/11/4/1028   1. Solving a Hard Cutting Stock Problem by Machine Learning and Optimisation   <https://link.springer.com/chapter/10.1007/978-3-319-23528-8_21>   1. A stabilized branch-and-price-and-cut algorithm for the multiple length cutting stock problem   https://www.sciencedirect.com/science/article/abs/pii/S0305054806002000 |
| EDA | 1. A E JEEVA (Project Owner) 2. Searching online for help and solutions. |
| Data Cleaning/Preparation | 1. A E JEEVA (Project Owner) 2. Searching online for help and solutions. |

# 8 APPROVALS

|  |  |
| --- | --- |
| **Prepared by** | \_\_\_\_Deeksha\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Project Manager |
| **Approved by** | Sharat |

Project Sponsor

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Executive Sponsor

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Client Sponsor



# 9 APPENDICES

**9.1 Document Guidelines**

## 9.2 Project Charter Document Sections Omitted

