**Cleveland State University**   
**Monte Ahuja College of Business**   
**IST 614 – Project Management and Scheduling**

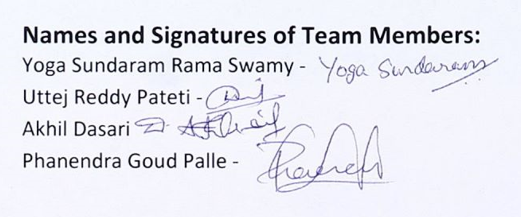
**Project Name:** Data Alignment and Enhancement for ­­­Semantic Segmentation

**Team Name:** Team Project -5­­

**Assignment Number:** MD3 –

Planning I

We, the undersigned team members, hereby solemnly pledge that the work assigned and submitted is completed solely by us and represents our own efforts and understanding of the in-depth knowledge acquired by us throughout this learning process.



**Quality Management Checklist**

| **Metric** | **Description** |
| --- | --- |
| 1. **Data Accuracy Improvement** | Aims for less than 0.5% data discrepancies post Data alignment implementation. |
| 1. **Integration Efficiency of The Data Alignment Solution** | Target a 50% reduction in data integration time and resources. |
| 1. **Data Alignment System Scalability** | Ensure the Data Alignment system handles around 50% increased data volume without performance loss. |
| 1. **AWS Data Security Compliance** | Maintain the strict adherence to AWS security standards, with regular audits. |
| 1. **User Access Control** | The Solution can be Implemented and regularly review a role-based access control system. |
| 1. **System Uptime and Availability** | Maintain higher like 99.95% system uptime for consistent availability. |
| 1. **AWS Employee Satisfaction and Productivity.** | Monitor and improve Annotation team AWS productivity and satisfaction. |
| 1. **Error Rate in Semantic Segmentation** | Reduce segmentation errors to below .05% post-implementation of the Data Alignment Solution. |
| 1. **Response Time to Back-end Data Queries** | Achieve a 30% reduction i.e., a greater percentage in data query response time when the query is pulled. |
| 1. **Data Redundancy Reduction** | Target a 25% decrease in redundant data for efficiency. |
| 1. **Science tam Satisfaction with Data Alignment and the accurate Data** | Aim for 80-95% average customer satisfaction score on aligned data quality. |

1. **Data Accuracy Improvement**

* **Description:** This quantifying the improvement in the accuracy of data because of the alignment and correction processes implemented in the project. The primary objective is to significantly reduce data discrepancies across all categories. The target is to achieve a discrepancy rate of less than 0.05%, exhibiting a high level of data integrity and reliability. This progress is crucial as it directly impacts the efficacy of AWS’s machine learning and computer vision applications that rely on precise and consistent data. Regular assessments should be available and conducted to ensure that this accuracy level is maintained or improved over time, adjusting processes as necessary to meet this critical benchmark.

1. **Integration Efficiency**

* **Description**: the improvement in efficiency of the data integration processes within the project. The focus is on measuring the reduction in both time and resources required for integrating data when compared to previous methodologies. The goal is to achieve a substantial decrease, aiming for a 50% reduction in the time taken for the data integration. This metric is vital as it reflects the project's impact on operational efficiency, particularly how quickly and effectively data can be processed and made available for usage. Attaining this target would signify a substantial enhancement in workflow and resource utilization, directly contributing to the overall productivity and cost-effectiveness of AWS's data management operations. Regular monitoring and process optimization are essential to maintain or exceed this level of integration efficiency.

1. **System Scalability**

**Description:** The ability of the system to accommodate increased data volumes, explicitly targeting a 50% increase in data capacity without any loss in performance. The focus is on assuring the system remains robust and efficient as data demands grow, echoing its adaptability and future-proofing. Scalability is critical for AWS, as it indicates the system's readiness to handle expanding datasets without compromising on speed or accuracy, which is essential for maintaining high service standards in data management and processing.

1. **Data Security Compliance**

**Description:** This metric is centered on ensuring that all processed critical data strictly adheres to AWS's comprehensive data security protocols. involving the encryption of data both in transit and at rest, safeguarding it against unauthorized access and breaches. Regular compliance audits are crucial to ensure ongoing adherence to these security standards. This metric is vital for maintaining trust and integrity in AWS's data handling, which is paramount for both AWS and its clients, given the sensitivity and importance of the data managed.

1. **User Access Control**

**Description:** The implementation and persistent review For Crucial role-based access control system. The aim is to ensure that exclusively authorized personnel have access to specific categories of both the sensitive and critical data, effectively managing data accessibility and preventing potential internal data breaches. Regular reviews and updates Throughout this system are essential to adapt to changing personnel and project requirements, always ensuring data security and integrity.

1. **System Uptime and Availability**

**Description:** The Data alignment system aims for at least 99.5% uptime. High uptime ensures that the alignment tool is consistently available for operational use, Accommodating the general and evening shifts throughout, minimizing disruptions in data processing and access. This metric is critical for ensuring the smooth and efficient operation of AWS services that rely on the system, as it directly impacts productivity and service quality. Regular monitoring and maintenance are essential to achieve and sustain this high level of system availability.

1. **Employee Satisfaction and Productivity**

**Description:** This metric concentrates on reckoning the significance of the alignment system on the productivity and satisfaction levels of employees, especially those in data handling and processing roles. The purpose is to achieve positive feedback and notable improvements in performance metrics. This applies to regularly surveying Annotation team members and analyzing Weekly productivity data to identify areas where the Data alignment system has enhanced their work efficiency and satisfaction. It's crucial to maintain high morale and productivity among employees, as this directly affects the quality of their work and the project's overall success.

1. **Error Rate in Semantic Segmentation**

**Description:** This metric measures the accuracy of semantic segmentation post-implementation of the project. The goal is to secure a low error rate, with a target set at below .05%. This is a critical indicator of the effectiveness of the data alignment in enhancing the precision of machine learning models used in AWS's computer vision tasks. Regular monitoring and fine-tuning of the algorithms are necessary to maintain or improve this level of accuracy.

1. **Response Time to Data Queries**

**Description:** The system's efficiency is measured by tracking the average response time to data queries. The project's target is to achieve a 50% reduction in response time compared to the baseline measured before the implementation. This improvement is significant as it positively impacts the Customer experience, particularly in scenarios requiring quick data retrieval. It tracks the average response time of the system to data queries. The target is to achieve a 50% reduction in response time compared to the baseline measured before the project's implementation. This improvement is significant as it reflects the system's efficiency and impacts the user experience positively, especially in scenarios requiring quick data retrieval.

1. **Data Redundancy Reduction**

**Description:** This metric evaluates the effectiveness of the data alignment system in reducing data redundancy. The aim is to achieve a 25% decrease in redundant data within the system post-implementation. This reduction is essential for improving storage efficiency and data management, leading to more streamlined and cost-effective data-handling processes within AWS. The effectiveness of the data alignment system in reducing data redundancy is measured by this metric. The goal is to achieve a 25% decrease in redundant data within the system after implementation. This is important for improving storage efficiency and data management, which will lead to more streamlined and cost-effective data handling processes within AWS.

1. **Customer Satisfaction with Aligned Data**

**Description:** This metric is about assessing the satisfaction level of customers, both internally within AWS and externally, with the quality of the aligned data. The goal is to achieve an average satisfaction score above 95%. This is gauged through surveys and feedback tools, reflecting the system's success in meeting user needs and expectations regarding data quality and usability. High customer satisfaction indicates the project's overall success and positive impact on users.

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| **WBS** | **Task Name** | **Project Manager (PM)** | **Asst. Proj Manager (APM)** | **Business Analyst (BA)** | **Project Coordinator (PC)** | **Data Analyst (DA)** |
| 1.1 | Define Project Scope | A/R | C | C |  |  |
| 1.2 | Develop Project Charter | A/R | R | C |  |  |
| 1.3 | Identify Stakeholders | C |  | R/A |  |  |
| 1.4 | Establish Project Team | A/R |  |  | R |  |
| 1.5 | Develop WBS | A/R | C |  | R |  |
| 1.6 | Kickoff Meeting | A/R |  | C | C | C |

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| **WBS** | **Task Name** | **PM** | **BA** | **PC** | **DA** | **PA** | **SA** |
| 2.1 | Gather Requirements | A | R | C | C |  |  |
| 2.1.1 | Conduct Stakeholder Interviews | C | A/R |  |  |  |  |
| 2.1.2 | Facilitate Requirements Workshops | A/R | C | R |  |  |  |
| 2.1.3 | Distribute and Analyze Surveys |  | R | A | C |  |  |
| 2.1.4 | Observe Annotator Workflows |  |  |  |  |  | A/R |
| 2.2 | Document Requirements | A | R |  | C |  |  |
| 2.2.1 | Develop User Stories and Use Cases | A | R |  |  |  | C |
| 2.2.2 | Create Functional Requirements Document | A | R |  |  |  | C |
| 2.2.3 | Define Non-Functional Requirements | A | R |  |  |  | C |
| 2.3 | Validate and Prioritize Requirements | A | R |  |  |  | C |
| 2.3.1 | Host Prioritization Sessions | A | C |  |  |  | R |
| 2.3.2 | Review Requirements with Stakeholders | A | R |  |  | C |  |
| 2.3.3 | Perform Feasibility Study | A | C |  |  | R |  |
| 2.4 | Feasibility Study Completion | A |  |  |  |  |  |

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| **WBS** | **Task Name** | **PM** | **SA** | **DA** | **DtA** | **DE** | **IE** | **SS** | **SrSS** | **SA** |
| 3.1.1 | Define High-Level System Architecture | C | A/R |  |  |  |  |  |  |  |
| 3.1.2 | Develop Data Flow Diagrams | C | A/R |  |  |  |  |  |  |  |
| 3.1.3 | Design Database Schema | C | A/R |  |  |  |  |  |  |  |
| 3.2.1 | Design Algorithms for Data Alignment | C |  |  | A/R | R |  |  |  |  |
| 3.2.2 | Design Metadata Schema | C |  |  | A/R | R |  |  |  |  |
| 3.3.1 | Specify Infrastructure Requirements | C |  |  |  |  | A/R |  |  |  |
| 3.3.2 | Design Infrastructure Scalability Plan | C |  |  |  |  | A/R |  |  |  |
| 3.4.1 | Develop Security Protocols | C |  |  |  |  |  | A/R | R |  |
| 3.4.2 | Design Disaster Recovery Solutions | C |  |  |  |  |  |  |  | A/R |
| 3.5.1 | Define User Roles and Permissions | C |  |  |  |  |  | A/R |  |  |
| 3.5.2 | Design User Authentication Mechanisms | C |  |  |  |  |  | A/R |  |  |
| 3.6.1 | Conduct Design Review Sessions | A/R | C |  | C | C | C | C | C | C |
| 3.6.2 | Finalize and Approve Design Specs | A/R |  |  |  |  |  | C | C | C |

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| **WBS** | **Task Name** | **PM** | **SA** | **DA** | **DtA** | **DE** | **IE** | **SS** | **SrSS** |
| 4.1 | Develop Data Alignment Software | A |  | C | R | R |  |  |  |
| 4.1.1 | Backend Development | C | R |  |  | A |  |  |  |
| 4.1.2 | Frontend Development | C | R |  |  | A |  |  |  |
| 4.2 | Implement Scalable Infrastructure | C |  |  |  |  | R/A |  |  |
| 4.3 | Set Up User Access Control System | C |  |  |  |  |  | A | R |
| 4.4 | Data and Annotations Management Dev | C |  | R |  | A |  |  |  |
| 4.5 | API Development | C | R |  |  | A |  |  |  |
| 4.6 | Documentation and Code Reviews | A | C |  |  |  |  | C |  |

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| **WBS** | **Task Name** | **PM** | **QA** | **DE** | **SA** | **CS** |
| 5.1 | Test Planning | A | R |  | C |  |
| 5.2 | Functional Testing | C | R | A |  |  |
| 5.3 | Non-Functional Testing | C | R |  | A |  |
| 5.4 | Quality Assurance Processes | A | R |  | C |  |
| 5.5 | User Acceptance Testing (UAT) | A | R |  |  | C |

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| **WBS** | **Task Name** | **PM** | **DA** | **ITOS** | **CS** |
| 7.1 | Implement Monitoring Systems | C | A | R |  |
| 7.2 | Ongoing Performance Analysis | C | R | A |  |
| 7.3 | User Feedback Collection | C |  |  | R |
| 7.4 | Issue Resolution and Optimization | A | C | R | I |
| 7.5 | Reporting to Stakeholders | A |  |  | R |

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| **WBS** | **Task Name** | **PM** | **DE** | **IE** | **QA** | **CS** |
| 6.1 | Preparation for Deployment | A |  | R | C |  |
| 6.2 | Deployment Execution | A | R | A | C |  |
| 6.3 | Transition to Operations | A | C | R |  | I |
| 6.4 | Deployment Review | A | C |  | C | R |

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| **WBS** | **Task Name** | **PM** | **TW** | **CS** |
| 8.1 | Documentation Compilation | A | R |  |
| 8.2 | Documentation Review | A | R | C |
| 8.3 | Finalization and Distribution | A | R | C |

The Stake holders involved in the entire project are listed below

* PM: Project Manager
* SA: Systems Architect
* DA: Data Analyst
* DtA: Data Architect
* DE: Data Engineer
* IE: Infrastructure Engineer
* SS: Security Specialist
* SrSS: Senior Security Specialist
* SA: Security Analyst
* CS: Communication Specialist
* QA: Quality Assurance
* TW: Technical Writer
* ITOS: IT Operating Specialist

The Simplified version of the RACI

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| **WBS Element** | **Task Description** | **Project Manager** | **CIO** | **BA** | **SA** | **Dvt Team** | **QA Team** | **IT Operations Team** | **DA** | **SS** | **QA Lead** | **Training Specialist** | **Technical Writer** | **Team Members** | **All Stakeholder** |
| 1 | Project Initialization | A/R | C | C | - | - | - | - | - | - | - | - | - | C | I |
| 2 | Requirements Analysis | A | - | R | C | - | - | - | C | - | - | - | - | C | I |
| 3 | Design Phase | A | - | C | R | C | - | - | C | C | - | - | - | C | I |
| 4 | Development Phase | C | - | - | A | R | - | - | - | - | - | - | - | C | I |
| 5 | Testing and Quality Assurance | C | - | - | C | - | R | - | C | - | A | - | - | C | I |
| 6 | Deployment Phase | C | - | - | - | - | - | R | - | - | - | C | - | C | I |
| 7 | Monitoring and Reporting | A | - | - | - | - | - | - | R | - | - | - | - | C | C/I |
| 8 | Project Documentation | A | - | - | - | - | - | - | - | - | - | - | R | C | I |

• R (Responsible): The person or team who does the work to complete the task.

• A (Accountable): The person ultimately answerable for the correct and thorough completion of   
 the task. This is the role that approves the work.

• C (Consulted): Those whose opinions are sought; they have two-way communication.

• I (Informed): Those who are kept up to date on progress; they have one-way communication.

Risk Register

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| **No.** | **Rank** | **Risk** | **Description** | **Root Cause** | **Triggers** | **Potential Responses** | **Risk Owner** | **Probability** | **Impact** |
| 1 | High | Data Breach | Unauthorized, insufficient training and access leading to data loss | Inadequate security protocols and Security Trainings | Security breach | Strengthen security measures, regular audits conduct trainings | Security Manager | Medium | High |
| 2 | Medium | Technical Delays and fluctuation on the flow of Vision data | Delays due to technical challenges | Complexity in integration and access | Technical issues | Enhanced training, additional technical support with quick response rate | Project Manager | High | Medium |
| 3 | Low | Budget Overruns | Exceeding the allocated budget than estimated earlier will lead to budget over run | Mismanagement of resources. unforeseen circumstance in the global currency exchange rate | Cost overruns | Regular budget reviews, cost control measures | Finance Manager | Low | High |
| 4 | High | Regulatory Compliance Failure | Non-compliance with data regulations (GDPR) and Updates on the Local laws | Lack of awareness | Regulatory changes | Compliance training, legal consultations and sufficient trainings and updation of the local laws | Compliance Officer | Medium | High |
| 5 | Medium | High Employee Turnover | Loss of key staff during the project | Job dissatisfaction, Global Recession, work strain, Pandemic of unforeseen nature, Peer Pressure. | Resignations | Improve working conditions, Good Remuneration, Other Health and family welfare benefits, retention strategies | HR Manager | High | High |
| 6 | Low | Increased Team contribution | Enhanced productivity due to effective teamwork and reduced complexity in data processing | Good management | Positive team interactions, Sharing Best practices and knowledge | Foster team collaboration, regular team meetings, Increased KT sessions and input from senior annotators | Team Lead | High | Low |
| 7 | High | System Downtime | Unexpected downtime of systems | System failure | Technical glitches | Regular system maintenance, backup systems and cloud services to support 24/7 | IT Manager | Medium | High |
| 8 | Medium | Enhanced Data Accuracy | Improved data accuracy throughout the process leading to better decision-making and improved algorithm for the Science team. | Successful project implementation | Successful data alignment | Improved data quality, continuous improvement in the Data Cleaning process and Monitoring | Data Analyst | High | Low |
| 9 | Low | Stakeholder Disengagement and distrust mid-process. | Lack of stakeholder interest or support | Poor communication and external influence through competition and negative public response and reactions | Lack of updates | Regular stakeholder meetings, Well informed project details and satisfaction. | Project Manager | Low | Medium |
| 10 | High | Inadequate Training | Staff unprepared for new systems and Inadequate Knowledge training systems | Inadequate training programs | Poor performance | Develop comprehensive training programs | Training Manager | Medium | High |
| 11 | Medium | Positive Customer Feedback | Increased customer satisfaction | Improved data quality | Positive feedback | Utilize feedback for marketing, continuous improvement | Marketing Manager | High | Low |
| 12 | Low | Reduced Operational Efficiency | Decrease in operational efficiency due to unforeseen externalities | Inadequate process planning | Process inefficiencies | Process reengineering, efficiency audits | Operations Manager | Medium | Medium |
| 13 | High | Inaccurate Data Analysis | Errors in data analysis leading to poor decisions due to pilot project | Faulty algorithms and inadequate data availability during data collection. | Analysis errors | Regular data audits, algorithm adjustments | Data Scientist | Medium | High |
| 14 | Medium | Positive Regulatory Feedback | Positive feedback from regulatory bodies | Compliance with regulations | Regulatory reviews | Maintain compliance, regular updates | Compliance Officer | High | Low |
| 15 | Low | Technology Advancements | Project benefits from new technologies | Technological innovation | New tech adoption | Integrate new technologies, continuous training | Tech Manager | High | Low |
| 16 | High | Data Misalignment | Misalignment of data impacting project outcomes | System errors | Misalignment signs | Data realignment strategies, regular checks | Data Manager | High | High |
| 17 | Medium | Increased Operational Costs | Higher than anticipated operational expenses | Unforeseen costs | Budget reviews | Cost-cutting strategies, renegotiate contracts | Finance Manager | Medium | Medium |
| 18 | High | Integration Failures | Failures in integrating new and existing systems | Incompatibility issues | Integration testing failures | Pre-implementation testing, contingency planning | Systems Engineer | Medium | High |
| 19 | Medium | Positive Public Relations | Enhanced public image of the company and reviews on social media | Successful project implementation | Positive media coverage through public response and word of mouth | Public relations campaigns, media engagement | PR Manager | High | Low |