**Requirement Life Cycle for Customer Segmentation Model (Telecommunications Company)**

**1. Elicitation**

* **Objective**: Gather business requirements and identify key stakeholders to define the scope and goals of the customer segmentation model.
* **Methods**: Conduct interviews with business users, surveys, and workshops. Use data from CRM, customer service, billing, and marketing systems to understand customer behavior and needs.
* **Outputs**: Initial list of requirements, user stories, and business goals (e.g., improve targeted marketing, optimize customer retention).

**2. Analysis and Documentation**

* **Objective**: Analyze the collected data and requirements, ensuring they align with the company’s strategic goals.
* **Activities**: Identify data sources, define segmentation criteria (e.g., demographics, usage patterns, spending behavior), and document functional and non-functional requirements.
* **Outputs**: Detailed requirement specification document (including data attributes, segmentation algorithms, and performance expectations).

**3. Validation and Verification**

* **Objective**: Ensure that the requirements are clear, complete, feasible, and align with business objectives.
* **Activities**: Validate requirements through reviews, walkthroughs, and feedback from stakeholders. Verify that the model's expected outcomes align with business goals (e.g., increasing customer retention or revenue).
* **Outputs**: Approved requirements document, validated user stories, and verified business objectives.

**4. Prioritization and Negotiation**

* **Objective**: Prioritize the features and requirements to align with project timelines, budgets, and resource availability.
* **Activities**: Use techniques such as MoSCoW (Must have, Should have, Could have, Won’t have) or value-based prioritization. Negotiate with stakeholders to settle on the most critical aspects of the segmentation model.
* **Outputs**: Prioritized requirement list, agreed-upon scope for the model's first version, and trade-offs where necessary.

**5. Change Management**

* **Objective**: Handle any changes to the scope, features, or requirements during the development process.
* **Activities**: Establish a change control process to manage scope creep. Ensure changes are documented, evaluated for impact, and communicated to relevant stakeholders.
* **Outputs**: Change request logs, updated requirements, and change impact assessments.

**6. Communication & Collaboration**

* **Objective**: Ensure effective communication and collaboration among all stakeholders (e.g., data scientists, business analysts, IT teams, marketing, and leadership).
* **Activities**: Use regular meetings, status updates, and collaboration tools (e.g., Slack, Jira) to maintain transparency and address challenges promptly.
* **Outputs**: Meeting notes, action items, regular status reports, and updates.

**7. Traceability and Impact Analysis**

* **Objective**: Maintain traceability of requirements throughout the lifecycle and assess the impact of each requirement on the overall model.
* **Activities**: Use a requirements traceability matrix to link requirements to specific segments, data sources, and outputs. Assess how changes in one part of the model (e.g., new customer data) affect other segments.
* **Outputs**: Traceability matrix, impact analysis reports, and documentation of dependencies.

**8. Implementation and Testing**

* **Objective**: Develop and test the customer segmentation model based on the requirements.
* **Activities**: Data preparation, feature engineering, model training (e.g., clustering, decision trees), and iterative testing using a subset of customer data. Validate results using KPIs like segmentation accuracy, business outcomes, and performance metrics.
* **Outputs**: Developed segmentation model, test cases, model performance reports, and validation results.

**9. Validation and Acceptance**

* **Objective**: Confirm that the model meets the defined business requirements and performance expectations.
* **Activities**: Conduct user acceptance testing (UAT) with key stakeholders, test model predictions on a real customer set, and validate against business KPIs (e.g., improved targeting effectiveness, customer churn).
* **Outputs**: UAT sign-off, acceptance report, and validated model ready for deployment.

**10. Deployment and Maintenance**

* **Objective**: Deploy the model to production and ensure ongoing maintenance and performance monitoring.
* **Activities**: Deploy the segmentation model into the production environment. Set up automated monitoring and reporting systems to track the model's performance. Provide continuous support for issues, model updates, and data changes.
* **Outputs**: Deployed model, maintenance schedule, performance monitoring dashboard, and ongoing support plan.

**11. Retirement and Archival**

* **Objective**: Retire the model when it’s no longer useful, ensuring all data is archived for future reference.
* **Activities**: Conduct a review to assess whether the model is still achieving business goals. Archive data, model code, and performance results. Retire or decommission outdated models as necessary.
* **Outputs**: Archived documentation and model data, retirement plan, and historical model performance records.