### ****Task 1: Analyze Card Exposure on App****

**[Task Title]:** Analyze and Aggregate Card Exposure by Experiment Limb and Request Section  
**[Current State]:** There is no clear understanding of which cards users are exposed to across experimental limbs or request sections, making it difficult to assess exposure patterns.  
**[Change Proposed]:**

* Extract data for experiment\_limb\_id, request\_section, and request\_time from the database.
* Filter for a specific time period.
* Aggregate card exposure by experiment limb and request section.
* Save the results for further analysis.

**[Benefit/Goal]:** This task will provide insights into card exposure patterns across different experimental setups, enabling better optimization of reinforcement learning and business-as-usual logic.

**[Acceptance Criteria]:**

1. Data is successfully extracted and filtered for the relevant time period.
2. Exposure counts are aggregated by experiment\_limb\_id and request\_section.
3. Results are saved as a CSV file for further analysis.

### ****Task 2: Assess Limbs Assigned and Traceability****

**[Task Title]:** Trace Limb Assignment and Evaluate Conversion Metrics  
**[Current State]:** The relationship between experimental limbs (RL or BAU) and user actions (e.g., add to cart) is unclear, making it difficult to trace the effectiveness of assignments.  
**[Change Proposed]:**

* Extract experiment\_limb\_id, request\_section, and add\_to\_cart\_flag data.
* Aggregate metrics such as total requests, add-to-cart counts, and conversion rates for each limb and section.
* Save aggregated results for traceability analysis.

**[Benefit/Goal]:** This will enable clear traceability between assigned limbs and user actions, helping evaluate the effectiveness of different experimental setups.

**[Acceptance Criteria]:**

1. Limb assignment data is extracted successfully.
2. Metrics are aggregated for total requests, add-to-cart counts, and conversion rates.
3. Results are stored in a usable format (CSV or database).

### ****Task 3: Evaluate Confounding Variables in Cross-Sell Conversions****

**[Task Title]:** Analyze and Mitigate Confounding Variables for Cross-Sell Performance  
**[Current State]:** Confounding variables (e.g., region, social grade) may impact cross-sell performance, leading to biased evaluations of RL/BAU experiments.  
**[Change Proposed]:**

* Extract and analyze data on household\_region, household\_social\_grade, experiment\_limb\_id, and add\_to\_cart\_flag.
* Group data by confounding variables and calculate key metrics (e.g., conversion rates).
* Identify and highlight significant confounders.

**[Benefit/Goal]:** This task will control for confounding variables, improving the validity of cross-sell performance evaluations.

**[Acceptance Criteria]:**

1. Data on key confounders is extracted and cleaned.
2. Aggregated metrics are calculated by confounding variables.
3. A report summarizing significant confounders is generated.

### ****Task 4: Analyze Pricing Policy Effects on Broadband Cross-Sell****

**[Task Title]:** Assess the Impact of Pricing Policies on Cross-Sell Conversions  
**[Current State]:** There is limited visibility into how pricing strategies (e.g., tiered pricing) impact broadband cross-sell conversions.  
**[Change Proposed]:**

* Extract pricing data (pricing\_tier, pricing\_floor, pricing\_ceiling, etc.) and cross-sell outcomes.
* Aggregate metrics such as total requests, add-to-cart counts, and conversion rates by pricing tier.
* Analyze correlations between pricing strategies and conversion performance.

**[Benefit/Goal]:** This task will identify the most effective pricing strategies for driving broadband cross-sell conversions.

**[Acceptance Criteria]:**

1. Data on pricing and cross-sell outcomes is extracted.
2. Aggregated metrics by pricing tier are calculated.
3. A report or visualization showing the relationship between pricing and conversions is created.

### ****Task 5: Link Digital Touchpoints to Cross-Sell Outcomes****

**[Task Title]:** Map Digital Touchpoints to Cross-Sell Performance Metrics  
**[Current State]:** The impact of digital touchpoints (e.g., request location, channel) on cross-sell performance is not well understood.  
**[Change Proposed]:**

* Extract data for request\_channel, request\_location, experiment\_limb\_id, and add\_to\_cart\_flag.
* Aggregate metrics by touchpoints and experiment limbs.
* Identify the most effective touchpoints for cross-sell success.

**[Benefit/Goal]:** This task will uncover the role of digital touchpoints in driving cross-sell performance, enabling targeted optimizations.

**[Acceptance Criteria]:**

1. Data on touchpoints is extracted and cleaned.
2. Metrics are aggregated by request\_channel, request\_location, and experiment\_limb\_id.
3. Insights on effective touchpoints are documented.

### ****Task 6: SQL Dashboard for Conversion Metrics****

**[Task Title]:** Build SQL Dashboard for Tracking Conversion Metrics  
**[Current State]:** Conversion metrics are not available in a centralized and accessible format, hindering real-time decision-making.  
**[Change Proposed]:**

* Create a SQL query to calculate conversion metrics (total requests, add-to-cart rates, etc.).
* Store metrics in a centralized database table.
* Build a dashboard (e.g., Tableau, Power BI) for real-time tracking.

**[Benefit/Goal]:** This task will provide stakeholders with a centralized dashboard for monitoring conversion metrics, improving decision-making efficiency.

**[Acceptance Criteria]:**

1. SQL queries for key metrics are created and tested.
2. Metrics are stored in a centralized database table.
3. A live dashboard is built and shared with stakeholders.

### ****Task 7: Conduct Randomized Experiments****

**[Task Title]:** Evaluate RL vs. BAU Logic Through Randomized Experiments  
**[Current State]:** The effectiveness of reinforcement learning (RL) versus business-as-usual (BAU) logic is not quantified due to a lack of randomized experiments.  
**[Change Proposed]:**

* Design an experiment comparing RL and BAU logic.
* Assign users randomly to experimental limbs.
* Measure and compare key metrics (e.g., conversion rates, revenue).

**[Benefit/Goal]:** This task will provide data-driven insights into the comparative performance of RL and BAU logic.

**[Acceptance Criteria]:**

1. Experimental design is documented and implemented.
2. Users are randomly assigned to experimental limbs.
3. Metrics are collected and analyzed for performance comparisons.