QUANTITATIVE & FINANCE SOLUTION

SKILL ASSESSMENT

DESCRIPTION

Hi [Insert Candidate Name],

Congratulations on successfully progressing to this round of Deloitte's selection process! We're thrilled to have you join us for this critical stage, where you'll have the opportunity to demonstrate the valuable skills and capabilities we discussed in your previous interview.

This scenario-based assessment is designed to provide you with a realistic glimpse into the challenges and opportunities you might encounter as a QFS (Quantitative and Financial Solutions) team member. We believe the best way to assess your potential is by observing your approach to real-world problems.

Your problem-solving skills will be at the forefront as you navigate a situation closely mirroring the fast-paced and impactful work our team handles daily. This isn't just about finding the right answer; it's about showcasing your analytical thinking, strategic approach, and ability to communicate complex findings under pressure. We're excited to see your insights and how you tackle this challenge!

SCENARIO

A renowned bank, a leader in the retail banking space, operates four distinct products (with book size):

- Deposit: 150 billion
- Home Loans: $95 billion
- Personal Loans: $10 billion
- Credit Card: $45 billion

In recent months, the Reserve Bank of Australia (RBA) announced **two (2)** rate cuts: one in **February 2025** and another in **May 2025**. The bank publicly declared its intention to reflect the February 2025 rate cut on **15 March 2025**, across all the retail banking product. For the purpose of this assessment, you may assume both rate cuts were **25 basis points** (bps) each. You will need to refer to the RBA's official cash rate announcements for 2025 for specific dates and details. On 21 May 2025, following the RBA's second announcement, the bank discovered that **none of its retail banking products had actually reflected the first rate cut** (February 2025). This critical oversight requires immediate resolution, and an impact estimate must be released to the media **before June 9, 2025**. The bank has engaged a prestigious consulting firm to help **quantify the estimated financial impact** and **determine a provision amount** for customer remediation. As a key analyst joining the team, you are tasked with developing this estimate. Given the tight deadline and ongoing data consolidation at the bank, you are provided with publicly available **past publications from the bank**, which outline book sizes, risk profiles, and other necessary information for your analysis.

YOUR TASK

Your primary objective is to develop a robust estimate of the financial impact and the amount to be provisioned for customer remediation. You will present your findings to the Quant Finance Partner. Given the

time constraints, you are required to select and analyse at least two (2) of the four impacted retail banking products. Your analysis should be structured as follows:

1. Introduction: Briefly set the context of the problem and clearly state the objective of your analysis.
2. Approach: Detail your methodology for calculating the financial impact and the provision amount.
3. Assumptions: Clearly articulate all assumptions made during your analysis. Be prepared to justify them.
4. High-Level Calculations: Provide an overview of your calculation logic for the selected products, demonstrating the core formula or steps.
5. Detailed Working: Present your comprehensive, step-by-step calculations for each of the chosen products. This section should be clear, transparent, and easy to follow.
6. Conclusion: Summarize your key findings, including the estimated total financial impact ($) and the recommended provision amount ($).

PRESENTATION GUIDELINES

You will have 15 minutes for your presentation, followed by 10 minutes for a Q&A session with the Quant Finance Partner. You may use any programming language (e.g., Python, R, Excel) or underlying dataset, provided it is suitable for research purposes and its use is justified. You must state all resources used and share your detailed working in an appendix to your presentation. A presentation that effectively uses graphs and charts to visualize key data and insights is highly encouraged over purely textual discussions. A work paper summarizing the findings will be seen exceptional in the interviewing panel's eyes.

ADDITIONAL INFORMATION & GUIDANCE

Data Availability: For your analysis, you may assume access to the bank's publicly available Annual Reports (2023, 2024) and Investor Presentation Decks (Q1 2025). You are also encouraged to research and utilize any relevant publicly available RBA data or general financial industry benchmarks.

RBA Cash Rate Reference: For official RBA cash rate announcements, please refer to the official RBA website: https://www.rba.gov.au/statistics/cash-rate/ . Focus specifically on the announcements for February and May 2025.

Understanding "Remediation": The provision amount should represent the total estimated amount the bank will need to repay or credit to customers due to the delayed reflection of the rate cut. This will primarily involve calculating the interest differential over the impacted period for the affected customer base. For ease of calculation, consider the compensatory interest applied as -

RBA cash rate (for the impacted period) + 3.5%

Focus on Estimation: This is a time-sensitive estimation exercise. Your focus should be on developing a robust and logical approach to arrive at a reasonable estimate, rather than getting bogged down in minute details that may not be available or practical within the given timeframe.

SUGGESTED PRESENTATION FLOW

Consider structuring your slides as follows:

- Slide 1: Title Slide (Project Title, Your Name, Date)
- Slide 2: Introduction (Problem Statement & Objective)
- Slide 3: Approach (Methodology Overview)

- Slide 4-5: Key Assumptions (List and explain your critical assumptions)
- Slide 6: High-Level Calcs Overview (Summary of the core calculation logic)
- Slide 7-9: Detailed Working (Product 1 & 2) (Breakdown of calculations, using charts where appropriate)
- Slide 10: Conclusion & Key Findings (Estimated Total Financial Impact and Provision Amount, key insights/caveats)
- Appendix Slides: (Detailed Data Sources & References, Full Calculation Spreadsheets/Code Snippets)
- Q&A Preparation: Be prepared to clearly articulate your reasoning, defend your assumptions, and discuss potential sensitivities or limitations of your analysis during the Q&A session.

The above are just indication of a concise presentation. Please add or remove the contents that suits your approach/method.

APPENDIX

Mock Data Tables (As of 28 Feb 2025)

Note to Candidate: This data is provided to facilitate your analysis and represents key figures as extracted from the bank's latest internal reporting, aligned with insights from their Annual Reports and Investor Presentations. You may need to make further assumptions based on this data for your calculations.

Table 1: Product Overview & Book Values

Product	Total Book Value (Bn AUD)	Customer Count (Millions)	% Variable Rate Customers (Estimated)	% Fixed Rate Customers (Estimated)
Deposit	$150	8.5	10%	90%
Home Loans	$95	1.2	85%	15%
Personal Loans	$10	0.8	95%	5%
Credit Card	$45	3.1	100%	0%

Notes:

Total Book Value: *Represents the aggregated outstanding balance for loans or deposits as of the end of February 2025.*

% Variable/Fixed Rate Customers: *This indicates the approximate proportion of the product's book value tied to variable vs. fixed interest rates.*

Table 2: Product Interest Rates & Risk Profiles

Product	Current Average Interest Rate (As of Feb 29, 2025)	Expected New Average Interest Rate (Pre-Rate Cut) (As of March 15, 2025)	Average Maturity (Years) / Term	Risk Profile (Internal Rating)
Deposit	3.50%	3.25%	N/A (Demand Deposit)	Very Low
Home Loans	6.80%	6.55%	25 (average)	Medium
Personal Loans	9.50%	9.25%	5 (average)	Medium-High
Credit Card	18.00%	17.75%	Revolving	High

Notes:

Current Average Interest Rate (As of Feb 29, 2025): *The weighted average interest rate actually being applied to the variable portion of the book for each product, prior to the intended reflection of the Feb 2025 rate cut.*

Expected New Average Interest Rate (Pre-Rate Cut) (As of March 15, 2025): *The expected average interest rate for the variable portion of the book after the bank's announced reflection of the 25 bps Feb 2025 RBA rate cut. This is the rate that should have been applied from March 15.*

Average Maturity/Term: *For credit products, this is the average remaining term of the loan portfolio. For Deposits, it's typically demand-based.*

Risk Profile (Internal Rating): *A qualitative assessment of the inherent risk in the product, which can influence provisioning methodologies (though not directly for this rate cut remediation).*

Table 3: Customer Behaviour & Operational Assumptions

Metric	Deposit	Home Loans	Personal Loans	Credit Card
Average Monthly Account Balance (AUD)	$17,647	N/A	N/A	N/A
Average Outstanding Loan Balance (AUD)	N/A	$791,667	$12,500	$14,516
Customer Churn Rate (Annual)	5%	3%	8%	10%

Notes:

Average Monthly Account/Outstanding Balance*: Derived from Total Book Value / Customer Count. Provided for granular calculation possibilities if needed.*

Operational Lag for Rate Changes*: This refers to the typical time it takes for new rates to be implemented internally after an RBA announcement. For this scenario, the issue is that the March 15th implementation didn't happen. This metric is here to provide context about normal operations.*

Customer Churn Rate*: Annual rate at which customers leave or new customers join. While not directly relevant to the initial remediation period (as existing customers are impacted), it's a general metric that might be considered for long-term impacts or if the candidate thinks of broader implications. For the immediate remediation, this is likely less critical.*