# Project Overview: NovaTrust Bank Customer Analysis

**Objective:** The objective of this project is to identify and segment NovaTrust Bank's student customers transitioning into the workforce who are most likely to be interested in products & services for working professionals.

**The Process**

**Setup Database**

**1. Setup Database**

1. First, create a Database in SQL Server called NovaTrust Bank.
2. import customers.csv and transaction.csv to form tables: dbo.customers and dbo.transactions.
3. customers.csv contains 10.000 unique accounts.
4. Transactions.csv contains 283,041 transaction records between 2021–2023.

**2. Identify all student accounts with regular salary inflows in the last one year.**

1. Extract student accounts from dbo.customers where employmentStatus = Student.
2. Combine with dbo.transaction to access their transaction history.
3. Filter to retain only transactionType = Credit records from the past year
4. Filter to retain data where the transDescription column contains the word **Salary.** This would give you all student account numbers that have received salary over time.

```
SELECT c.Account_Number,
          t.TransactionID,
          t.TransactionDate,
          t.Transaction_Amount,
          t.TransDescription
 FROM [dbo].[Customers] AS c
```

```
11.  INNER JOIN [dbo].[transaction] AS t
12.  ON c.Account_Number = t.AccountNumber
13.  WHERE c.Employment_Status = 'Student'
14.  AND LOWER(t.TransDescription) LIKE '%salary%'
15.  AND t.TransactionDate >= DATEADD(MONTH, -12, '2023-08-31')
16.  AND t.TransactionType = 'Credit'
```

### 3. Customer Segmentation using RFM Model

The RFM (Recency, Frequency, Monetary) model is a customer segmentation modelk that uses three variables to segment customers:

1. Recency: When was their last salary credited in the past year?
2. Frequency: How many times was a salary credited in the past year?
3. Monetary: What's their average salary over the past year.

Each variable is assigned a score, and the score are then combined to create an overall RFM score. Customers with higher RFM scores are generally considered to be more valuable customers.

For brevity, only accounts with average salaries exceeding 200,000 are considered.

### 4. RFM Scoring System

The RFM scoring system assigns scores based on criteria as follows.

| **Assigned scores** | **10** | **7** | **4** | **1** |
|---|---|---|---|---|
| **Indicators** | | | | |
| **Recency** | Last Salary received was in the most current month | Last Salary received was at least 3 months ago | Last Salary received was at least 5 months ago | Last Salary received was over 5 months ago |

| | | | | |
|---|---|---|---|---|
| **Frequency** | Received salary every month in the last 1 year | Received Salary at least 9 times in the last 1 year | Received Salary at least 6 times in the last 1 year | Received Salary less than 6 times in the last 1 year |
| **Monetary value** | Average Salary received is > 600k | Average Salary received is between 400–600k | Average Salary received is between 300–400k | Average Salary received is between 200–300k |

**RFM Score**

The RFM Score was calculated by summing the R, F, and M scores. Each customer can have a maximum possible score of 30, and the sum of the R,F, and M scores was divided by 30 to make it a 100%. This provides an overall assessment of a customer's value and engagement.

**5. Customer Categories**

Range: 10 to 100%

Interpretation:

**Tier 1 Customer**: RFM Score >= 80%

**Tier 2 Customer**: RFM Score between 70 and 80%

**Tier 3 Customer**: RFM Score less than 50%

## 6. Code Reusability

- To enhance efficiency, all queries are encapsulated in a stored procedure (Sp_GetCustomerSegments). This eliminates the need to rewrite the queries every time there's a need to segment Customers.
- Create the stored procedure using the following SQL statement:

```
CREATE PROCEDURE GetCustomerSegment
        @EmploymentStatus NVARCHAR(50),
        @DateCriteria DATE,
        @TransDescription NVARCHAR(50)
AS
BEGIN
   --Reset of the Code



END;
```

To call the stored procedure, use the following SQL statement:

```
EXEC GetCustomerSegment
        @EmploymentStatus = 'Student',
        @DateCriteria = '2023-08-31',
        @TransDescription = 'Salary';
```