End-to-End test plan to cover all integration points and layers:

1. **Integration Points :**
    a. Card Payment → Integration Layer
    b. DataWarehouse→Integration Layer
    c. Decisioning Engine → Integration Layer
2. **Layers:**
    a. Integration Layer logs all the messages/activities on the log file that are passed through it
    b. Fraud Decisioning Engine validates the request +enrichment data sent by the integration layer against the Database to authorize/decline the transaction based on the Conditions
3. **Overview :**
    a. To Verify the Request Message sent to Integration Layer through MQ when card payment made from a merchant sends the transaction details with the mandatory fields
        - *Cust Id*
        - *Tran Id*
        - *Tran Amount*
        - *Merchant Id*

    b. To Verify Integration layer consumes the Enrichment data from the DW with below fields to the when request received from the Customer for Card Payment through Multiple feeds
        - *Cust DOB*
        - *Cust Post Code*
        - *Merchant Post Code*

    c. To Validate the Integration Layer transforms the Customer sent request with the Enrichment Data that are readable by Fraud Decisioning Engine which is sent through TCP to Fraud Decisioning Engine

    d. To Verify the Response message sent by the Integration Layer to the Payment System as per the decisioning Engine based on the test conditions
        i. *Cust DOB = Unknown, then Age >=18*
        ii. *Payment Declined when:*
            1. *Cust DOB : Age < 18 and Tran Amount >$ 5000*
            2. *Cut Post Code : Unknown and Tran Amount > $10000*
            3. *Merchant Post Code not NSW and Tran Amount > $20000*

4. **Test Deliverables:**
    a. Test Plan
    b. High Level Test Scenarios
    c. Traceability Matrix
    d. Test Cases
    e. Business Sign off for Testcases
    f. Defect Reports

g. Test Summary Reports
h. Test Metrics

5. **Test Levels:**
    a. Sanity Testing
    b. Progression Testing / Re testing
    c. Regression Testing
    d. Smoke Testing
6. **Test ToolSet Plan:**
    a. Test Management Tool : Requirements are uploaded and testcases are mapped to the user Stories
    b. Defect Tracking Tool : Defects are logged on the defect tracking tool
    c. Database Management Tool : Validate Enrichment data + Request message against the values in the Database
    d. Message Queue Testing tool: Validate the Request /Response Message from the card payment
    e. Postman : Validating the Enrich data by TCP protocol on Integration Layer & Decision Engine communication

Test Process:

1.Card Payment to Integration layer:

Usecase:

Card Payment should share the below mandatory fields to the Integration Layer by MQ on every transaction

- *Cust Id*
- *Tran Id*
- *Tran Amount*
- *Merchant Id*

Test Strategy:

- Test Data for the User to make transaction
- Perform API testing, Security Testing , Negative Testing, Performance testing
- Testcases to be reviewed by Business Analysts
- Document the Test Results during Execution
- Defects to be raised on Bug tracking tool and follow up for resolution
- Cross track Data dependency

Test Steps:

- Card Payment done by the customer with the merchant and mandatory attributes are sent to the integration layer
- Request added in the Queue , if the Integration Layer is busy/down
- Once the request consumed by Integration Layer, validate the logs on the log file

- If the Request not consumed by Integration Layer from the queue due to session time out
- Error thrown when the mandatory fields are not sent by the card payment

Test Data:

S.No	Cust ID	Tran ID	Tran Amount	Merchant ID
TD1	CUST1111	TRAN1111	10000	MER1111
TD2	CUST1112	TRAN1112	10700	

2.DW to Integration layer:

Usecase:

Integration Layer gets Enrichment data from the DW for the particular Transaction

- *Cust DOB*
- *Cust Post Code*
- *Merchant Post Code*

Test Strategy:

- Test Data for the User to make transaction
- Perform API testing, Security Testing , Negative Testing, Performance testing
- Testcases to be reviewed by Business Analysts
- Document the Test Results during Execution
- Defects to be raised on Bug tracking tool and follow up for resolution
- Cross track Data dependency

Test Steps:

- Card Payment done by the customer with the merchant and mandatory attributes are sent to the integration layer
- Once the request consumed by Integration Layer, validate the logs on the log file
- Same Customer ID and Merchant ID should be available in DW and Integration Layer fetches the Enrichment details from DW

Test Data:

Card Payment:

S.No	Cust ID	Tran ID	Tran Amount	Merchant ID
TD1	CUST1111	TRAN1111	10000	MER1111

DW:

S.No	Cust ID	Merchant ID	Cust DOB	Cust Post Code	Merchant Post Code
TD1	CUST1111	MER1111	9/15/1980	123465	123465

3.Descision Engine to Integration layer:

Usecase:

Response message sent by the Integration Layer to the Payment System as per the decisioning Engine based on the test conditions

i. *Cust DOB = Unknown, then Age >=18*
ii. *Payment Declined when:*
    1. *Cust DOB : Age < 18 and Tran Amount >$ 5000*
    2. *Cut Post Code : Unknown and Tran Amount > $10000*
    3. *Merchant Post Code not NSW and Tran Amount > $20000*

Test Strategy:

- Test Data for the User to make transaction
- Perform API testing, Security Testing , Negative Testing, Performance testing
- Testcases to be reviewed by Business Analysts
- Document the Test Results during Execution
- Defects to be raised on Bug tracking tool and follow up for resolution
- Cross track Data dependency

Test Steps:

- Card Payment done by the customer with the merchant and mandatory attributes are sent to the integration layer
- Once the request consumed by Integration Layer, validate the logs on the log file
- Same Customer ID and Merchant ID should be available in DW and Integration Layer fetches the Enrichment details from DW
- Integration Layer sent the Enrichment Data + Request Message to Decision Engine readable format
- Decision engine process the data and send back the response to the Card Payment via Integration Layer

Test Data:

Card Payment:

S.No	Cust ID	Tran ID	Tran Amount	Merchant ID
TD3	CUST1113	TRAN1113	1000	MER1113
TD4	CUST1114	TRAN1114	5000	MER1114
TD5	CUST1115	TRAN1115	10010	MER1115
TD6	CUST1116	TRAN1116	20000	MER1116
TD7	CUST1117	TRAN1117	7000	MER1117

DW:

S.No	Cust ID	Merchant ID	Cust DOB	Cust Post Code	Merchant Post Code
TD3	CUST1113	MER1113	UNKNOWN	123466	345789
TD4	CUST1114	MER1114	9/16/2007	123466	345789
TD5	CUST1115	MER1115	9/16/1990	UNKNOWN	345789
TD6	CUST1116	MER1116	9/16/1990	123466	3457856(Not NSW)
TD7	CUST1117	MER1117	9/17/1990	32434546	345789