National University of Computer and Emerging Sciences Chiniot-Faisalabad Campus



**metabase**

Software Quality Engineering

### Semester Project

### Phase 2

### BS (SE) 5A

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**APPLICATION: METABASE**

**MODULE: Action MODULE**

# RISK ANALYSIS: -

## Security Risks:

## Unauthorized Action Execution:

* Risk: Users might execute unauthorized actions (e.g., deleting critical data).
* Mitigation: Implement robust access controls and permissions.

## Data Privacy Risks:

* Risk: Sensitive data exposure through actions.
* Mitigation: Ensure actions adhere to data privacy regulations; implement encryption for data transmission and storage.

## Authentication and Authorization:

* Risk: Weak authentication and authorization for actions.
* Mitigation: Implement secure authentication and two-factor authentication for critical actions.

## Data Integrity Risks:

## Action Failure Impact:

* Risk: Actions failing and impacting data integrity.
* Mitigation: Implement transactional mechanisms and a rollback mechanism for critical actions.

## Rollback Mechanism:

* Risk: Lack of a rollback mechanism for actions.
* Mitigation: Develop a rollback mechanism for actions that modify or delete data.

## Logging and Auditing:

* Risk: Inadequate logging and auditing for actions.
* Mitigation: Implement comprehensive logging and auditing for actions to identify and address data integrity issues.

## Performance Risks:

## Action Execution Time:

* Risk: Performance degradation as the number of actions increases.
* Mitigation: Implement performance testing to identify optimal execution times for different actions.

## Concurrency Handling:

* Risk: Concurrent actions affecting performance.
* Mitigation: Implement proper concurrency controls to manage simultaneous action execution.

## Resource Utilization:

* Risk: Impact of resource utilization by actions.
* Mitigation: Optimize actions to avoid unnecessary load on the system.

# Equivalence Class Partitioning (ECP): -

## Valid Action Inputs:

* ECP: Categorize inputs into valid classes. For example, valid input for a "Delete" action includes an existing record identifier.

## Dashboard Invalid Action Inputs:

* ECP: Identify invalid classes, such as attempting to delete a non-existent record or providing incorrect parameters for an action.

# Boundary Value Analysis (BVA): -

## Number of Simultaneous Actions:

* BVA: Test the system's behavior under different loads, including the minimum (0 actions), typical (1 action), and maximum (e.g., 10 simultaneous actions) scenarios.

## Data Volume Impact:

* BVA: Evaluate how the size of the data impacted by actions affects performance. Test with small and large datasets to ensure scalability.