

Personal Budget tracker

ENSE 375 Project

Data flow Testing Delete Entry Method

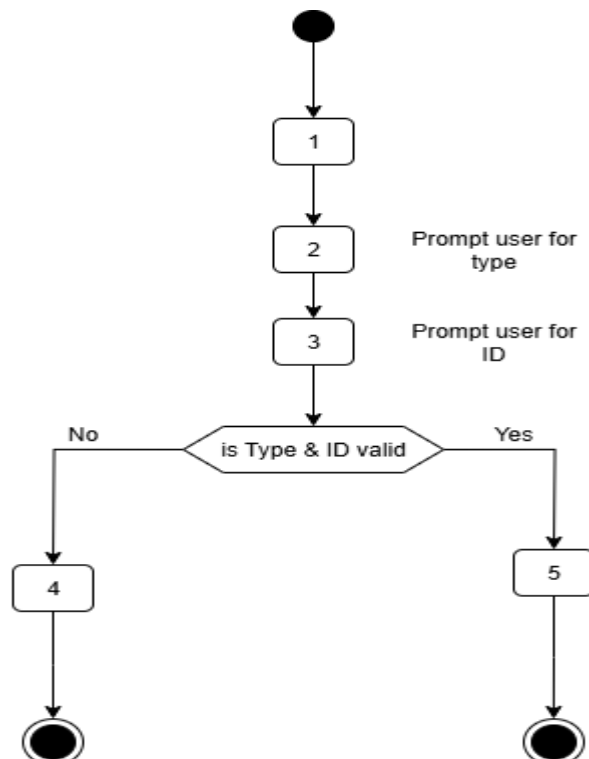
To begin data flow testing we'll start by creating a CFG (control flow graph) for the deleteEntry method, while identifying all the nodes and edges. Then the necessary criteria for data flow testing will be defined.

Nodes:

1. Start (User selects delete entry from database)
2. Action: Prompt user for type
3. Action: Prompt user for ID
4. Check: Check if user inputs are valid
5. Return false
6. Return True

Edges:

1. Edge 1: node 1 -> 2
2. Edge 2: node 2 -> 3
3. Edge 3: node 3 -> 4
4. Edge 4: node 4 -> 5
5. Edge 5: node 4 -> 6



CFG graph

Legend:

- 1: Start (User selects delete entry from database)
- 2: Prompt user for type
- 3: Prompt user for ID
- 4: Return False
- 5: Return True

Def's and Uses:

1. Def's: (id, type, result (deleteEntry()))
2. Use: (Check if user inputs are valid , type (5), result (deleteEntry() (3))

DU pairs:

1. DU pair for type (2, 4), (2, 5), (2, 6)
2. DU pair for ID (3, 4)

DU paths:

DU paths for type:

1. 1 -> 2 -> 3 -> 4 -> 6

DU paths for ID:

1. 1 -> 2 -> 3 -> 4 -> 6

Test path coverage:

ADC:

- Type: 2 -> 5, 2 -> 6
- ID: 3 -> 5, 3 -> 6

AUC:

- Type: 2 -> 5, 2 -> 6
- ID: 3 -> 5, 3 -> 6

ADUPC:

- Type: 2 -> 5, 2 -> 6
- ID: 3 -> 5, 3 -> 6

Criteria definitions:

1. ADC (All def's coverage): Coverage criteria that ensures all variable definitions have been covered at least once.
2. AUC (All uses coverage): Coverage criteria that ensures all uses of variables are covered by paths from their definitions.

3. ADUPC (All du paths coverage): Coverage criteria that ensures all possible execution paths between each variable's definition and corresponding use are covered.

Test for deleteEntry method

DeleteEntry method

Provided below is the annotated deleteEntry method illustrating the respective nodes for testing

```
public boolean deleteEntry() {  
    String type = view.promptString("Enter type of entry to delete (income/expense): "); // Node 2  
    int id = view.promptInt("Enter entry ID to delete: "); // Node 3  
  
    if (model.deleteEntryById(type, id)) { // Node 4 condition  
        view.displayMessage("Entry deleted"); // Node 6  
        return true;  
    } else {  
        view.displayMessage("Invalid entry ID or type."); // Node 5  
        return false;  
    }  
}
```

Detailed implementation of tests conducted on deleteEntry method is provided in BudgetController_DataFlowTesting.java file.