



TU856/3 SOFTWARE TESTING

LAB 4



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Black Box Testing

Train Timetables

1. Partitions and Boundary Values for Train Ticket Types:

- **Full Fare Periods:** Before 09:30 AM and between 4:00 PM to 7:30 PM.
- **Saver Ticket Periods:** 09:30 AM - 4:00 PM and after 7:30 PM.
- **Boundary Values:** 09:30 AM, 4:00 PM, and 7:30 PM.

Test Case	Time	Expected Ticket Type
TC1	09:29 AM	Full Fare
TC2	09:30 AM	Saver Ticket
TC3	03:59 PM	Saver Ticket
TC4	04:00 PM	Full Fare
TC5	07:29 PM	Full Fare
TC6	07:30 PM	Saver Ticket
TC7	08:00 PM	Saver Ticket

2. Valid and Invalid Partitions:

- **Valid Partitions:** Morning peak (before 09:30 AM), mid-day saver (09:30 AM - 4:00 PM), evening peak (4:00 PM - 7:30 PM), and late-night saver (after 7:30 PM).
- **Invalid Partition:** Any time outside 24-hour format (e.g., 25:00, -1:00).

Rail Cards

1. Decision Table for Rail Card Discounts:

Over 60s Card	Family Rail Card	Travelling with Child	Discount
Yes	No	No	34%
No	Yes	Yes	50%
No	Yes	No	10%
No	No	No	0%

2. Derived Test Cases:

Test Case	Over 60s Card	Family Rail Card	Travelling with Child	Expected Discount
TC1	Yes	No	No	34%
TC2	No	Yes	Yes	50%
TC3	No	Yes	No	10%
TC4	No	No	No	0%

Shopping Basket

1. State Diagram:

- **States:** Empty, Items Added, Checkout, Confirmed Purchase, Cancelled.
- **Transitions:**
 - Adding an item moves from Empty to Items Added.
 - Removing all items moves from Items Added to Empty.
 - Proceeding to checkout moves from Items Added to Checkout.
 - Confirming purchase moves from Checkout to Confirmed Purchase.
 - Cancelling at checkout moves from Checkout to Items Added.

2. State Table:

Current State	Action	Next State
Empty	Add Item	Items Added
Items Added	Remove Item	Empty (if last item)
Items Added	Proceed to Checkout	Checkout
Checkout	Confirm Purchase	Confirmed Purchase
Checkout	Cancel Purchase	Items Added

3. Test Sequence Covering All Transitions:

1. Start in **Empty** state.
2. Add an item → **Items Added** state.
3. Remove the item → **Empty** state.
4. Add multiple items → **Items Added** state.
5. Proceed to checkout → **Checkout** state.
6. Cancel checkout → Return to **Items Added**.
7. Proceed to checkout again → **Checkout** state.
8. Confirm purchase → **Confirmed Purchase** state.

4. Example of an Invalid Transition:

- **Invalid Case:**
 - **Removing an item when the basket is Empty** (This action is **invalid** because no items exist to remove).