**Data Dictionary:**

|  |  |  |
| --- | --- | --- |
| **Data Item** | **Data Type** | **Description** |
| number | int | The number of the movie. |
| movieType | int | The show time of the ticket. |
| numAdult | int | The number of Adult tickets. |
| numUnder18 | int | The number of Under 18 tickets. |
| chance | int | The chances given to user to enter valid discount code. |
| discountAmount | double | The amount of discount to be given. |
| price | double | The total price of the ticket without discount. |
| discount | char | The choice of user whether he/she wants a discount or not. |
| discountCode | String | The discount code entered by user. |
| creditCard | String | The credit card number entered by user. |

**Class Diagram:**

Diagram

Description automatically generated

**Algorithms:**

welcome():

1. Display Welcome to The Galaxy Theatre!
2. Call getMovie function.

getMovie():

1. Display Please select the number of the movie.
2. Display number and name of all movies.
3. Take movie number input from user.
4. Check whether the movie number is valid or not.
5. If the number is invalid, display that the movie number is invalid and go back to step 1.
6. If the number is valid, display the movie name and call getMovieType function.

getMovieType():

1. Display Please select the show time.
2. Display number and name of all timings.
3. Take show number input from user.
4. Check whether the show time is valid or not.
5. If the number is invalid, display that the show time number is invalid and go back to step 1.
6. If the number is valid, display the show time and call getTicketType function.

getTicketType():

1. Get the number of adult tickets from user.
2. If the movie is “The Scream” there must be one adult. If not, then display a message and go back to step 1.
3. Get the number of under 18 tickets from user.
4. Call the getDiscount function.

getDiscount():

1. Ask user whether they have a discount code.
2. If no, go to step 6.
3. If yes, ask user to enter discount code.
4. If the discount code is valid, display the discount code and give the discount.
5. If the discount code is invalid, give user three chances to enter correct discount code.
6. Call the getPrice function.

getPrice():

1. Calculate the price of adult tickets.
2. Calculate the price of under 18 tickets.
3. Display the ticket cost by adding both prices.
4. Give user discount if any and display the discounted price.
5. Call the creditCard function.

creditCard():

1. Ask user to enter the credit card number.
2. Hide the first 12 digits.
3. Display the credit card number.
4. Call the printTicket function.

printTicket():

1. Get the system date.
2. Display the date.
3. Display theatre name.
4. Display the show time.
5. Display number of under 18 tickets.
6. Display number of adult tickets.
7. Display the ticket cost
8. Display the discount amount if any.
9. Display the total cost after discount if any.
10. Display the credit card number.
11. Call the getMovie function.

main():

1. Call the welcome function.

**Test Cases:**

|  |  |
| --- | --- |
| **ID** | TC-1 |
| **Description** | To check that user should only enter the valid movie number. |
| **Setup** | The movie names with numbers are displayed. |
| **Instructions** | 1. 1 is entered. 2. 5 is entered. |
| **Expected Results** | 1. You selected the movie The Batman (Rating: 15A). 2. You selected Invalid movie. Please select again! |
| **Observed Output** | 1. You selected the movie The Batman (Rating: 15A). 2. You selected Invalid movie. Please select again! |
| **Verdict** | Pass |

|  |  |
| --- | --- |
| **ID** | TC-2 |
| **Description** | To check that user should only enter the valid show number. |
| **Setup** | The show times with numbers are displayed. |
| **Instructions** | 1. 2 is entered. 2. 3 is entered. |
| **Expected Results** | 1. You selected the Evening movie. 2. You selected Invalid show time. Please select again! |
| **Observed Output** | 1. You selected the Evening movie. 2. You selected Invalid show time. Please select again! |
| **Verdict** | Pass |

|  |  |
| --- | --- |
| **ID** | TC-3 |
| **Description** | To check that there must be an adult if The Scream is selected. |
| **Setup** | The movie number is selected. |
| **Instructions** | 1. 0 is entered. 2. 1 is entered. |
| **Expected Results** | 1. There must be at least one adult in the party. 2. How many Under 18 tickets do you want? |
| **Observed Output** | 1. There must be at least one adult in the party. 2. How many Under 18 tickets do you want? |
| **Verdict** | Pass |

|  |  |
| --- | --- |
| **ID** | TC-4 |
| **Description** | To check that user should only enter the valid discount code. |
| **Setup** | The user has chosen to use a discount code. |
| **Instructions** | 1. “RETFE” is entered. 2. “GTDISC” is entered. |
| **Expected Results** | 1. You entered Invalid discount code. Please try again! 2. You entered: GTDISC. |
| **Observed Output** | 1. You entered Invalid discount code. Please try again! 2. You entered: GTDISC. |
| **Verdict** | Pass |

**Bug:**

During testing, I found a bug that if zero number of adults are entered, the program said that there must be at least one adult in the party, but that requirement is only for “The Scream” movie. I resolved this bug by adding a condition that only display that error is the selected movie number is three.