**Test Cases**

**Test File :** CalculateRewardByTransaction.text.js

**Test Scenario :** Test case calculating the Reward points based on the transaction

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| **Test Case No** | **Test Case** | **Test Data** | **Expected Result** | **Actual Result** | **Status (PASS / FAIL)** |
| **1** | Calculate reward points of transaction between 50 to 100 | {…,  amount: 70} | 20 | 20 | **PASS** |
| **2** | Calculate reward points of transaction above 100 | {…,  amount: 120} | 90 | 90 | **PASS** |
| **3** | Calculate reward points of transaction below 50 | {…,  amount: 30} | 0 | 0 | **PASS** |
| **4** | Calculate reward points of transaction exactly 50 | {…,  amount: 50} | 0 | 0 | **PASS** |
| **5** | Calculate reward points of transaction exactly 100 | {…,  amount: 100} | 50 | 50 | **PASS** |

**Test File :** CustomerTransactionCalculator.test.js

**Test Scenario :** Calculate reward points, purchase and check correct dataset

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| **Test Case No** | **Test Case** | **Test Data** | **Expected Result** | **Actual Result** | **Status (PASS / FAIL)** |
| **1** | Reward points calculation for single transaction above 100 | [{  "transactionId": 1, "customerId": 1, "customerName": "Customer One", "transactionDate": "2024-01-12", "amount": 120  }]; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 90,  totalPurchasePerYear: 120,  monthlyTransaction: {  January: {  monthlyAmount: 120,  monthlyReward: 90,  },  },  },  },  totalRewards: 90,  totalTransaction: 120,  },  }; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 90,  totalPurchasePerYear: 120,  monthlyTransaction: {  January: {  monthlyAmount: 120,  monthlyReward: 90,  },  },  },  },  totalRewards: 90,  totalTransaction: 120,  },  }; | **PASS** |
| **2** | Calculate transaction with purchases with a decimal point 200.3 | [  {  transactionId: 1,  customerId: 1,  customerName: "Customer One",  transactionDate: "2024-01-12",  amount: 200.3,  },  ]; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 251,  totalPurchasePerYear: 200,  monthlyTransaction: {  January: {  monthlyAmount: 200.3,  monthlyReward: 251,  },  },  },  },  totalRewards: 251,  totalTransaction: 200,  },  }; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 251,  totalPurchasePerYear: 200,  monthlyTransaction: {  January: {  monthlyAmount: 200.3,  monthlyReward: 251,  },  },  },  },  totalRewards: 251,  totalTransaction: 200,  },  }; | **PASS** |
| **3** | Reward points calculation for multiple transaction with different customer | [{  "transactionId": 1,  "customerId": 1,  "customerName": "Customer One",  "transactionDate": "2024-01-12",  "amount": 120  },  {  "transactionId": 2,  "customerId": 2,  "customerName": "Customer Two",  "transactionDate": "2024-02-14",  "amount": 70  }  ]; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 90,  totalPurchasePerYear: 120,  monthlyTransaction: {  January: {  monthlyAmount: 120,  monthlyReward: 90,  },  },  },  },  totalRewards: 90,  totalTransaction: 120,  },  2: {  customerName: "Customer Two",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 20,  totalPurchasePerYear: 70,  monthlyTransaction: {  February: {  monthlyAmount: 70,  monthlyReward: 20,  },  },  },  },  totalRewards: 20,  totalTransaction: 70,  },  }; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 90,  totalPurchasePerYear: 120,  monthlyTransaction: {  January: {  monthlyAmount: 120,  monthlyReward: 90,  },  },  },  },  totalRewards: 90,  totalTransaction: 120,  },  2: {  customerName: "Customer Two",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 20,  totalPurchasePerYear: 70,  monthlyTransaction: {  February: {  monthlyAmount: 70,  monthlyReward: 20,  },  },  },  },  totalRewards: 20,  totalTransaction: 70,  },  }; | **PASS** |
| **4** | Reward points calculation for multiple transaction of customer | [{  "transactionId": 1,  "customerId": 1,  "customerName": "Customer One",  "transactionDate": "2024-01-12",  "amount": 120  },  {  "transactionId": 11,  "customerId": 1,  "customerName": "Customer One",  "transactionDate": "2024-03-10",  "amount": 90  },  {  "transactionId": 2,  "customerId": 2,  "customerName": "Customer Two",  "transactionDate": "2024-02-14",  "amount": 70  }  ]; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 130,  totalPurchasePerYear: 210,  monthlyTransaction: {  March: {  monthlyAmount: 90,  monthlyReward: 40,  },  January: {  monthlyAmount: 120,  monthlyReward: 90,  },  },  },  },  totalRewards: 130,  totalTransaction: 210,  },  2: {  customerName: "Customer Two",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 20,  totalPurchasePerYear: 70,  monthlyTransaction: {  February: {  monthlyAmount: 70,  monthlyReward: 20,  },  },  },  },  totalRewards: 20,  totalTransaction: 70,  },  }; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 130,  totalPurchasePerYear: 210,  monthlyTransaction: {  March: {  monthlyAmount: 90,  monthlyReward: 40,  },  January: {  monthlyAmount: 120,  monthlyReward: 90,  },  },  },  },  totalRewards: 130,  totalTransaction: 210,  },  2: {  customerName: "Customer Two",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 20,  totalPurchasePerYear: 70,  monthlyTransaction: {  February: {  monthlyAmount: 70,  monthlyReward: 20,  },  },  },  },  totalRewards: 20,  totalTransaction: 70,  },  }; | **PASS** |
| **5** | Reward points calculation for multiple transaction with different customer with amount between 50 and 100 and amount below 50 | [{  "transactionId": 1,  "customerId": 1,  "customerName": "Customer One",  "transactionDate": "2024-01-12",  "amount": 60  },  {  "transactionId": 2,  "customerId": 2,  "customerName": "Customer Two",  "transactionDate": "2024-02-14",  "amount": 20  }  ]; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 10,  totalPurchasePerYear: 60,  monthlyTransaction: {  January: {  monthlyAmount: 60,  monthlyReward: 10,  },  },  },  },  totalRewards: 10,  totalTransaction: 60,  },  2: {  customerName: "Customer Two",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 0,  totalPurchasePerYear: 20,  monthlyTransaction: {  February: {  monthlyAmount: 20,  monthlyReward: 0,  },  },  },  },  totalRewards: 0,  totalTransaction: 20,  },  }; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 10,  totalPurchasePerYear: 60,  monthlyTransaction: {  January: {  monthlyAmount: 60,  monthlyReward: 10,  },  },  },  },  totalRewards: 10,  totalTransaction: 60,  },  2: {  customerName: "Customer Two",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 0,  totalPurchasePerYear: 20,  monthlyTransaction: {  February: {  monthlyAmount: 20,  monthlyReward: 0,  },  },  },  },  totalRewards: 0,  totalTransaction: 20,  },  }; | **PASS** |
| **5** | Get only latest transaction data of Period of N months, where transaction data contains more than N consecutive months  of transaction within the same year | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 10,  totalPurchasePerYear: 60,  monthlyTransaction: {  January: {  monthlyAmount: 60,  monthlyReward: 10,  },  },  },  },  totalRewards: 10,  totalTransaction: 60,  },[  {  transactionId: 22,  customerId: 1,  customerName: "Customer One",  transactionDate: "2024-05-20",  amount: 100,  },  {  transactionId: 3,  customerId: 1,  customerName: "Customer One",  transactionDate: "2024-04-05",  amount: 101,  },  {  transactionId: 12,  customerId: 1,  customerName: "Customer One",  transactionDate: "2024-03-01",  amount: 130,  },  {  transactionId: 1,  customerId: 1,  customerName: "Customer One",  transactionDate: "2024-01-12",  amount: 200.3,  },  ];  2: {  customerName: "Customer Two",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 0,  totalPurchasePerYear: 20,  monthlyTransaction: {  February: {  monthlyAmount: 20,  monthlyReward: 0,  },  },  },  },  totalRewards: 0,  totalTransaction: 20,  },  }; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 212,  totalPurchasePerYear: 331,  monthlyTransaction: {  May: {  monthlyAmount: 100,  monthlyReward: 50,  },  April: {  monthlyAmount: 101,  monthlyReward: 52,  },  March: {  monthlyAmount: 130,  monthlyReward: 110,  },  },  },  },  totalTransaction: 331,  totalRewards: 212,  },  }; | {  1: {  customerName: "Customer One",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 212,  totalPurchasePerYear: 331,  monthlyTransaction: {  May: {  monthlyAmount: 100,  monthlyReward: 50,  },  April: {  monthlyAmount: 101,  monthlyReward: 52,  },  March: {  monthlyAmount: 130,  monthlyReward: 110,  },  },  },  },  totalTransaction: 331,  totalRewards: 212,  },  }; | **PASS** |
| **6** | Transaction dataset with multiple transaction within the same month | [  {  transactionId: 4,  customerId: 2,  customerName: "Customer Two",  transactionDate: "2024-03-12",  amount: 100,  },  {  transactionId: 4,  customerId: 2,  customerName: "Customer Two",  transactionDate: "2024-03-14",  amount: 100,  },  ]; | {  2: {  customerName: "Customer Two",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 100,  totalPurchasePerYear: 200,  monthlyTransaction: {  March: {  monthlyAmount: 200,  monthlyReward: 100,  },  },  },  },  totalTransaction: 200,  totalRewards: 100,  },  }; | {  2: {  customerName: "Customer Two",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 100,  totalPurchasePerYear: 200,  monthlyTransaction: {  March: {  monthlyAmount: 200,  monthlyReward: 100,  },  },  },  },  totalTransaction: 200,  totalRewards: 100,  },  }; | **PASS** |
| **7** | Get only latest transaction of N month period from dataset containing consecutive transaction of N months with different years | [  {  transactionId: 5,  customerId: 3,  customerName: "Customer Three",  transactionDate: "2024-01-25",  amount: 120,  },  {  transactionId: 5,  customerId: 3,  customerName: "Customer Three",  transactionDate: "2023-12-25",  amount: 120,  },  {  transactionId: 5,  customerId: 3,  customerName: "Customer Three",  transactionDate: "2023-11-25",  amount: 120,  },  ]; | {  3: {  customerName: "Customer Three",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 90,  totalPurchasePerYear: 120,  monthlyTransaction: {  January: {  monthlyAmount: 120,  monthlyReward: 90,  },  },  },  "2023 ": {  totalRewardsPerYear: 180,  totalPurchasePerYear: 240,  monthlyTransaction: {  December: {  monthlyAmount: 120,  monthlyReward: 90,  },  November: {  monthlyAmount: 120,  monthlyReward: 90,  },  },  },  },  totalTransaction: 360,  totalRewards: 270,  },  }; | {  3: {  customerName: "Customer Three",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 90,  totalPurchasePerYear: 120,  monthlyTransaction: {  January: {  monthlyAmount: 120,  monthlyReward: 90,  },  },  },  "2023 ": {  totalRewardsPerYear: 180,  totalPurchasePerYear: 240,  monthlyTransaction: {  December: {  monthlyAmount: 120,  monthlyReward: 90,  },  November: {  monthlyAmount: 120,  monthlyReward: 90,  },  },  },  },  totalTransaction: 360,  totalRewards: 270,  },  }; | **PASS** |
| **8** | Get only latest transaction of N month period from dataset containing non consecutive transaction of N months with different years | [  {  transactionId: 68,  customerId: 4,  customerName: "Customer Four",  transactionDate: "2024-01-02",  amount: 44,  },  {  transactionId: 68,  customerId: 4,  customerName: "Customer Four",  transactionDate: "2023-04-02",  amount: 44,  },  {  transactionId: 66,  customerId: 4,  customerName: "Customer Four",  transactionDate: "2023-01-25",  amount: 80,  },  ]; | {  4: {  customerName: "Customer Four",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 0,  totalPurchasePerYear: 44,  monthlyTransaction: {  January: {  monthlyAmount: 44,  monthlyReward: 0,  },  },  },  },  totalTransaction: 44,  totalRewards: 0,  },  }; | {  4: {  customerName: "Customer Four",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 0,  totalPurchasePerYear: 44,  monthlyTransaction: {  January: {  monthlyAmount: 44,  monthlyReward: 0,  },  },  },  },  totalTransaction: 44,  totalRewards: 0,  },  }; | **PASS** |
| **9** | Get only latest transaction of N month period from dataset containing non consecutive transaction of N months within same year | [  {  transactionId: 66,  customerId: 5,  customerName: "Customer Five",  transactionDate: "2024-07-01",  amount: 80,  },  {  transactionId: 66,  customerId: 5,  customerName: "Customer Five",  transactionDate: "2024-06-01",  amount: 80,  },  {  transactionId: 66,  customerId: 5,  customerName: "Customer Five",  transactionDate: "2024-01-25",  amount: 80,  },  ]; | {  5: {  customerName: "Customer Five",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 60,  totalPurchasePerYear: 160,  monthlyTransaction: {  July: {  monthlyAmount: 80,  monthlyReward: 30,  },  June: {  monthlyAmount: 80,  monthlyReward: 30,  },  },  },  },  totalTransaction: 160,  totalRewards: 60,  },  };  expect(  CalculateTotalRewardsAndPurchase(  CustomerTransactionCalculator(transactionData)  )  ).toEqual(expectedDataset);  }); | {  5: {  customerName: "Customer Five",  yearlyTransaction: {  "2024 ": {  totalRewardsPerYear: 60,  totalPurchasePerYear: 160,  monthlyTransaction: {  July: {  monthlyAmount: 80,  monthlyReward: 30,  },  June: {  monthlyAmount: 80,  monthlyReward: 30,  },  },  },  },  totalTransaction: 160,  totalRewards: 60,  },  };  expect(  CalculateTotalRewardsAndPurchase(  CustomerTransactionCalculator(transactionData)  )  ).toEqual(expectedDataset);  }); | **PASS** |
| **10** | Reward points calculation for empty data set | [] | {} | {} | **PASS** |

**Test File :** CustomerTransactionDetails.test.js

**Test Scenario :** Test Customer Transaction Details component

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| **Test Case No** | **Test Case** | **Test Data** | **Expected Result** | **Actual Result** | **Status (PASS / FAIL)** |
| 1 | Test Customer Transaction Details component properly loaded |  | Customer Transaction Details component is properly loaded | Component is loaded | **PASS** |