```python
import random
import pandas as pd

class SavingsAccount:
    def __init__(self, account_number, balance, transactions):
        self.account_number = account_number
        self.balance = balance
        self.transactions = transactions

    def add_funds(self, amount):

        self.balance += amount
        self.transactions.append(('Deposit', amount))

    def deduct_funds(self, amount):

        if amount <= self.balance:
            self.balance -= amount
            self.transactions.append(('Withdrawal', amount))
        else:
            print("Insufficient funds.")

def create_accounts(num_accounts, seed_value, duration_months,
trans_per_month):

    accounts_list = []
    random.seed(seed_value)
    for i in range(num_accounts):
        balance = random.randint(1000, 10000)
        transactions = []
        for month in range(duration_months):
            for transaction in range(trans_per_month):
                amount = random.randint(100, 500)
                if random.random() < 0.5:
                    transactions.append(('Deposit', amount))
                    balance += amount
                else:
                    transactions.append(('Withdrawal', amount))
                    balance -= amount
        accounts_list.append(SavingsAccount(i+1, balance,
transactions))
    return accounts_list

def display_accounts(accounts_list):

    for account in accounts_list:
        print(f"Account No: {account.account_number}, Balance:
{account.balance}")

def organize_accounts_by_balance(accounts_list):
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```python
    return sorted(accounts_list, key=lambda x: x.balance)

if __name__ == "__main__":
    total_accounts = 100
    random_seed = 42
    months_count = 12
    transactions_count = 5
    accounts_list = create_accounts(total_accounts, random_seed,
months_count, transactions_count)

    display_accounts(accounts_list)

    sorted_accounts_list = organize_accounts_by_balance(accounts_list)
    print("\nSorted accounts by balance:")
    display_accounts(sorted_accounts_list)
```

```
Account No: 1, Balance: 2488
Account No: 2, Balance: -767
Account No: 3, Balance: 4069
Account No: 4, Balance: 8606
Account No: 5, Balance: 8364
Account No: 6, Balance: 6891
Account No: 7, Balance: 9015
Account No: 8, Balance: 13318
Account No: 9, Balance: 7480
Account No: 10, Balance: 5169
Account No: 11, Balance: 10510
Account No: 12, Balance: 3199
Account No: 13, Balance: 5333
Account No: 14, Balance: 2002
Account No: 15, Balance: 8154
Account No: 16, Balance: 8943
Account No: 17, Balance: 10118
Account No: 18, Balance: 3978
Account No: 19, Balance: 7646
Account No: 20, Balance: 9007
Account No: 21, Balance: 1269
Account No: 22, Balance: 5278
Account No: 23, Balance: 5911
Account No: 24, Balance: 6455
Account No: 25, Balance: 3002
Account No: 26, Balance: 4405
Account No: 27, Balance: 1222
Account No: 28, Balance: 2004
Account No: 29, Balance: 8352
Account No: 30, Balance: 6760
Account No: 31, Balance: 10126
Account No: 32, Balance: 592
Account No: 33, Balance: 5308
```

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Account No: 34, Balance: 8937
Account No: 35, Balance: -393
Account No: 36, Balance: 7082
Account No: 37, Balance: 2201
Account No: 38, Balance: 2672
Account No: 39, Balance: 2086
Account No: 40, Balance: -390
Account No: 41, Balance: -53
Account No: 42, Balance: 3141
Account No: 43, Balance: 4604
Account No: 44, Balance: 4504
Account No: 45, Balance: 7040
Account No: 46, Balance: 5719
Account No: 47, Balance: 7644
Account No: 48, Balance: 6133
Account No: 49, Balance: 5602
Account No: 50, Balance: 8283
Account No: 51, Balance: 2901
Account No: 52, Balance: 569
Account No: 53, Balance: 11749
Account No: 54, Balance: 4848
Account No: 55, Balance: 4142
Account No: 56, Balance: 5798
Account No: 57, Balance: 10533
Account No: 58, Balance: 9577
Account No: 59, Balance: -598
Account No: 60, Balance: 1006
Account No: 61, Balance: 7506
Account No: 62, Balance: 13117
Account No: 63, Balance: 6735
Account No: 64, Balance: 5296
Account No: 65, Balance: 3490
Account No: 66, Balance: 810
Account No: 67, Balance: 2912
Account No: 68, Balance: 8398
Account No: 69, Balance: 7540
Account No: 70, Balance: 3447
Account No: 71, Balance: 1832
Account No: 72, Balance: 3093
Account No: 73, Balance: 1036
Account No: 74, Balance: 10522
Account No: 75, Balance: 6095
Account No: 76, Balance: 9084
Account No: 77, Balance: 9255
Account No: 78, Balance: 5089
Account No: 79, Balance: 9799
Account No: 80, Balance: 8616
Account No: 81, Balance: 710
Account No: 82, Balance: 1747
```

```
Account No: 83, Balance: 5500
Account No: 84, Balance: 4837
Account No: 85, Balance: 7817
Account No: 86, Balance: 3556
Account No: 87, Balance: 6527
Account No: 88, Balance: -392
Account No: 89, Balance: 1396
Account No: 90, Balance: 4018
Account No: 91, Balance: 1983
Account No: 92, Balance: 11405
Account No: 93, Balance: -584
Account No: 94, Balance: 2901
Account No: 95, Balance: 6717
Account No: 96, Balance: 11417
Account No: 97, Balance: 6959
Account No: 98, Balance: 5975
Account No: 99, Balance: 5759
Account No: 100, Balance: 6148

Sorted accounts by balance:
Account No: 2, Balance: -767
Account No: 59, Balance: -598
Account No: 93, Balance: -584
Account No: 35, Balance: -393
Account No: 88, Balance: -392
Account No: 40, Balance: -390
Account No: 41, Balance: -53
Account No: 52, Balance: 569
Account No: 32, Balance: 592
Account No: 81, Balance: 710
Account No: 66, Balance: 810
Account No: 60, Balance: 1006
Account No: 73, Balance: 1036
Account No: 27, Balance: 1222
Account No: 21, Balance: 1269
Account No: 89, Balance: 1396
Account No: 82, Balance: 1747
Account No: 71, Balance: 1832
Account No: 91, Balance: 1983
Account No: 14, Balance: 2002
Account No: 28, Balance: 2004
Account No: 39, Balance: 2086
Account No: 37, Balance: 2201
Account No: 1, Balance: 2488
Account No: 38, Balance: 2672
Account No: 51, Balance: 2901
Account No: 94, Balance: 2901
Account No: 67, Balance: 2912
Account No: 25, Balance: 3002
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Account No: 72, Balance: 3093
Account No: 42, Balance: 3141
Account No: 12, Balance: 3199
Account No: 70, Balance: 3447
Account No: 65, Balance: 3490
Account No: 86, Balance: 3556
Account No: 18, Balance: 3978
Account No: 90, Balance: 4018
Account No: 3, Balance: 4069
Account No: 55, Balance: 4142
Account No: 26, Balance: 4405
Account No: 44, Balance: 4504
Account No: 43, Balance: 4604
Account No: 84, Balance: 4837
Account No: 54, Balance: 4848
Account No: 78, Balance: 5089
Account No: 10, Balance: 5169
Account No: 22, Balance: 5278
Account No: 64, Balance: 5296
Account No: 33, Balance: 5308
Account No: 13, Balance: 5333
Account No: 83, Balance: 5500
Account No: 49, Balance: 5602
Account No: 46, Balance: 5719
Account No: 99, Balance: 5759
Account No: 56, Balance: 5798
Account No: 23, Balance: 5911
Account No: 98, Balance: 5975
Account No: 75, Balance: 6095
Account No: 48, Balance: 6133
Account No: 100, Balance: 6148
Account No: 24, Balance: 6455
Account No: 87, Balance: 6527
Account No: 95, Balance: 6717
Account No: 63, Balance: 6735
Account No: 30, Balance: 6760
Account No: 6, Balance: 6891
Account No: 97, Balance: 6959
Account No: 45, Balance: 7040
Account No: 36, Balance: 7082
Account No: 9, Balance: 7480
Account No: 61, Balance: 7506
Account No: 69, Balance: 7540
Account No: 47, Balance: 7644
Account No: 19, Balance: 7646
Account No: 85, Balance: 7817
Account No: 15, Balance: 8154
Account No: 50, Balance: 8283
Account No: 29, Balance: 8352
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Account No: 5, Balance: 8364
Account No: 68, Balance: 8398
Account No: 4, Balance: 8606
Account No: 80, Balance: 8616
Account No: 34, Balance: 8937
Account No: 16, Balance: 8943
Account No: 20, Balance: 9007
Account No: 7, Balance: 9015
Account No: 76, Balance: 9084
Account No: 77, Balance: 9255
Account No: 58, Balance: 9577
Account No: 79, Balance: 9799
Account No: 17, Balance: 10118
Account No: 31, Balance: 10126
Account No: 11, Balance: 10510
Account No: 74, Balance: 10522
Account No: 57, Balance: 10533
Account No: 92, Balance: 11405
Account No: 96, Balance: 11417
Account No: 53, Balance: 11749
Account No: 62, Balance: 13117
Account No: 8, Balance: 13318
```

```python
import pandas as pd

def compute_depreciation(value_at_start, years_covered):
    return value_at_start * (1 - 0.07)**years_covered


def compute_premiums(value_at_start, years_covered,
rate_of_premium=0.05):

    reduced_value = compute_depreciation(value_at_start,
years_covered)

    yearly_premium_amount = rate_of_premium * reduced_value
    quarterly_premium_amount = yearly_premium_amount / 4
    monthly_premium_amount = yearly_premium_amount / 12

    return reduced_value, yearly_premium_amount,
quarterly_premium_amount, monthly_premium_amount

# Changed vehicle details
vehicle_data = {
    'vehicle_id': '456ABC',
    'make': 'Honda',
    'model': 'Accord',
    'year': 2019,
    'initial_value': 25000,
    'insurance_years': 4
```

```
}

reduced_value, yearly_premium_amount, quarterly_premium_amount,
monthly_premium_amount = compute_premiums(
    vehicle_data['initial_value'], vehicle_data['insurance_years'])

premium_data_summary = {
    'Period': ['Yearly', 'Quarterly', 'Monthly'],
    'Premium ($)': [yearly_premium_amount, quarterly_premium_amount,
monthly_premium_amount]
}

premium_summary_df = pd.DataFrame(premium_data_summary)
premium_summary_df, reduced_value

(     Period  Premium ($)
 0     Yearly    935.065012
 1  Quarterly    233.766253
 2    Monthly     77.922084,
 18701.300249999993)

import matplotlib.pyplot as plt

def display_premium_breakdown(premium_summary_df):
    plt.figure(figsize=(8, 5))
    bars = plt.bar(premium_summary_df['Period'],
premium_summary_df['Premium ($)'], color=['purple', 'teal', 'red'])
    plt.title('Breakdown of Premium Costs')
    plt.xlabel('Payment Period')
    plt.ylabel('Premium Amount ($)')
    plt.grid(True, axis='y', linestyle='--', alpha=0.7)

    # Add value labels to bars
    for bar in bars:
        yval = bar.get_height()
        plt.text(bar.get_x() + bar.get_width()/2, yval, round(yval,
2), ha='center', va='bottom')

    plt.show()

# Call the modified function using the first DataFrame
display_premium_breakdown(premium_summary_df)
```

Breakdown of Premium Costs