**Test Cases**

Test Case 1: Add new cars of different types:

Actions:

1. Choose option 1 to add new cars.

2. Enter car details for a CompactCar (Type 1).

3. Enter car details for an SUV (Type 2).

4. Enter car details for a LuxuryCar (Type 3).

Input: Type 1

- CompactCar("Honda", "Civic", 2020, "KY-786"), Rental Fee = 4000, Features ("Basic features, suitable for short-distance travel."), No luxury tax, No insurance

Expected Output:

- Cars added successfully.

Test Case 2: Add new cars of different types:

Actions:

1. Choose option 1 to add new cars.

2. Enter car details for a CompactCar (Type 1).

3. Enter car details for an SUV (Type 2).

4. Enter car details for a LuxuryCar (Type 3).

Input: Type 2

- SUV("Audi", "E-tron GT", 2023, "A-000"), Rental Fee = 7000, Features ("suitable for family trips."), Insurance Cost (0.05).

Expected Output:

- Cars added successfully.

Test Case 3: Add new cars of different types:

Actions:

1. Choose option 1 to add new cars.

2. Enter car details for a CompactCar (Type 1).

3. Enter car details for an SUV (Type 2).

4. Enter car details for a LuxuryCar (Type 3).

Input: Type 3

- LuxuryCar("Dodge Challenger", "Hellcat", 2019, "AAA-888"), Rental Fee = 12000, Features ("High-end, suitable for special occasions."), Luxury Tax (0.2\*distance traveled), Insurance Cost (0.1).

Expected Output:

- Cars added successfully.

Test Case 4: Add new renter of different types:

Actions:

1. Choose option 4 to add new renter.

2. Enter renter details for a RegularRenter (Type 1).

3. Enter renter details for a FrequentRenter (Type 2).

4. Enter renter details for a CorporateRenter (Type 3).

Input: Type 1

- RegularRenter ("Abdul Moiz", "moiz@gmail.com", "65436532", "Islamabad"), Features ("Standard rent rates.”), Luxury Tax (0.2\*distance traveled), Insurance Cost (0.1).

Expected Output:

- Renter added successfully.

Test Case 5: Add new renter of different types:

Actions:

1. Choose option 4 to add new renter.

2. Enter renter details for a RegularRenter (Type 1).

3. Enter renter details for a FrequentRenter (Type 2).

4. Enter renter details for a CorporateRenter (Type 3).

Input: Type 2

- FrequentRenter("Ahsan Ali Qasim", "ahsan@yahoo.com", "35643201283", "Rawalpindi"), Features ("Loyalty program with discounted rates.”), Loyalty Discount(10%)

Expected Output:

- Renter added successfully.

Test Case 6: Add new renter of different types:

Actions:

1. Choose option 4 to add new renter.

2. Enter renter details for a RegularRenter (Type 1).

3. Enter renter details for a FrequentRenter (Type 2).

4. Enter renter details for a CorporateRenter (Type 3).

Input: Type 3

- CorporateRenter("Rafay", "xyz@honda.com.pk", "123456", "Wah Cantt"), Features ("Special rates for corporate clients.”), Corporate Discount(20%)

Expected Output:

- Renter added successfully.

Test Case 7: Remove any type of renter:

Actions:

1. Choose option 6 to remove a renter.
2. Choose any type. Let’s say RegularRenter (Type 1).

Input: Type 1

Expected Output:

- Renter added successfully.

Test Case 8: Take compact car with regular renter.

Actions:

1. Choose option 7 to rent car.
2. Choose option 1 for compact car.
3. Choose option 1 for regular renter.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 4240.0  
Damage Cost: 848.0

Test Case 9: Take compact car with frequent renter.

Actions:

1. Choose option 7 to rent car.
2. Choose option 1 for compact car.
3. Choose option 2 for frequent renter.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 3816.0  
Damage Cost: 763.0

Test Case 10: Take compact car with corporate renter.

Actions:

1. Choose option 7 to rent car.
2. Choose option 1 for compact car.
3. Choose option 3 for corporate renter.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 3392.0  
Damage Cost: 678.4

Test Case 11: Take suv car with regular renter.

Actions:

1. Choose option 7 to rent car.
2. Choose option 2 for suv car.
3. Choose option 1 for regular renter.
4. Choose 0 for no insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 7300.0

No insurance granted!  
Damage Cost: 1460.0

Test Case 12: Take suv car with frequent renter.

Actions:

1. Choose option 7 to rent car.
2. Choose option 2 for suv car.
3. Choose option 2 for frequent renter.
4. Choose 0 for no insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 6570.0

No insurance granted!  
Damage Cost: 1314.0

Test Case 13: Take suv car with corporate renter.

Actions:

1. Choose option 7 to rent car.
2. Choose option 2 for suv car.
3. Choose option 3 for corporate renter.
4. Choose 0 for no insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 5840.0

No insurance granted!  
Damage Cost: 1168.0

Test Case 14: Take suv car with regular renter with insurance.

Actions:

1. Choose option 7 to rent car.
2. Choose option 2 for suv car.
3. Choose option 1 for regular renter.
4. Choose 1 for insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 7300.0

Insurance granted! Rent Cost after adding insurance amount: 7650.0

Damage Cost: 1110.0

Test Case 15: Take suv car with frequent renter with insurance.

Actions:

1. Choose option 7 to rent car.
2. Choose option 2 for suv car.
3. Choose option 2 for frequent renter.
4. Choose 1 for insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 6570.0

Insurance granted! Rent Cost after adding insurance amount: 6920.0  
Damage Cost: 964.0

Test Case 16: Take suv car with corporate renter with insurance.

Actions:

1. Choose option 7 to rent car.
2. Choose option 2 for suv car.
3. Choose option 3 for corporate renter.
4. Choose 1 for insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 5840.0

Insurance granted! Rent Cost after adding insurance amount: 6190.0  
Damage Cost: 818.0

Test Case 17: Take luxury car with regular renter.

Actions:

1. Choose option 7 to rent car.
2. Choose option 3 for luxury car.
3. Choose option 1 for regular renter.
4. Choose 0 for no insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 12360.0

No insurance granted!  
Damage Cost: 2472.0

Test Case 18: Take luxury car with frequent renter.

Actions:

1. Choose option 7 to rent car.
2. Choose option 3 for luxury car.
3. Choose option 2 for frequent renter.
4. Choose 0 for no insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 11124.0

No insurance granted!  
Damage Cost: 2224.0

Test Case 19: Take luxury car with corporate renter.

Actions:

1. Choose option 7 to rent car.
2. Choose option 3 for a luxury car.
3. Choose option 3 for corporate renter.
4. Choose 0 for no insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 9888.0

No insurance granted!  
Damage Cost: 1977.6

Test Case 20: Take luxury car with regular renter with insurance.

Actions:

1. Choose option 7 to rent car.
2. Choose option 3 for luxury car.
3. Choose option 1 for regular renter.
4. Choose 1 for insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 12360.0

Insurance granted! Rent Cost after adding insurance amount: 12710.0  
Damage Cost: 1272.0

Test Case 21: Take luxury car with frequent renter with insurance.

Actions:

1. Choose option 7 to rent car.
2. Choose option 3 for luxury car.
3. Choose option 2 for frequent renter.
4. Choose 1 for insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 11124.0

Insurance granted! Rent Cost after adding insurance amount: 12324.0  
Damage Cost: 1024.8

Test Case 22: Take luxury car with corporate renter with insurance.

Actions:

1. Choose option 7 to rent car.
2. Choose option 3 for luxury car.
3. Choose option 3 for corporate renter.
4. Choose 1 for insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 9888.0

Insurance granted! Rent Cost after adding insurance amount: 11088.0  
Damage Cost: 777.6

Test Case 23: Take suv car with regular renter with insurance for a damage cost:

Actions:

1. Choose option 7 to rent car.
2. Choose option 2 for suv car.
3. Choose option 1 for regular renter.
4. Choose 1 for insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 7300.0

Insurance granted! Rent Cost after adding insurance amount: 7650.0

Damage Cost: 1110.0

Test Case 24: Take luxury car with frequent renter for a damage cost:

Actions:

1. Choose option 7 to rent car.
2. Choose option 3 for luxury car.
3. Choose option 2 for frequent renter.
4. Choose 0 for no insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 11124.0

No insurance granted!  
Damage Cost: 2224.0

Test Case 25: Take compact car with frequent renter for a damage cost:

Actions:

1. Choose option 7 to rent car.
2. Choose option 1 for compact car.
3. Choose option 2 for frequent renter.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 3816.0  
Damage Cost: 763.0

Test Case 26: Take luxury car with corporate renter with insurance for a damage cost:

Actions:

1. Choose option 7 to rent car.
2. Choose option 3 for luxury car.
3. Choose option 3 for corporate renter.
4. Choose 1 for insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 9888.0

Insurance granted! Rent Cost after adding insurance amount: 11088.0  
Damage Cost: 777.6

Test Case 27: Take suv car with corporate renter with insurance for a damage cost:

Actions:

1. Choose option 7 to rent car.
2. Choose option 2 for suv car.
3. Choose option 3 for corporate renter.
4. Choose 1 for insurance.

Inputs:

distance travelled = 1200

Output:

Rental Cost: 5840.0

Insurance granted! Rent Cost after adding insurance amount: 6190.0  
Damage Cost: 818.0