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**ASSIGNMENT NO.: 7**

**ON**

**BLOCKCHAIN TECHNOLOGY(SSCS3021)**

**TITLE: Car Trading Network using Hyperledger Composer**

**BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY (BSC-IT)**

**SUBMITTED TO:**

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**Designation: ASSISTANT PROFESSOR**

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**SUBMITTED BY:**

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**Enrollment: 23SS02IT161**

**BSCIT5B-Batch 2023-26**

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**Subject Code: SSCS3010**

**ASSIGNMENT-7**

**Date:24/09/2025**

**Aim: Car Trading Network using Hyperledger Composer**

**Step 1 — Model File**

```
// SPDX-License-Identifier: Apache-2.0
namespace org.example.cartrading
participant Buyer identified by buyerId {
  o String buyerId
  o String name
}
participant Seller identified by sellerId {
  o String sellerId
  o String name
}
asset Car identified by carId {
  o String carId
  o String model
  o Double price
  --> Seller owner
}
transaction BuyCar {
  --> Car car
  --> Buyer newOwner
}
event CarPurchased {
  --> Car car
  --> Buyer newOwner
  --> Seller oldOwner
}
```

**Step 2 — Logic File**

```
/**
 * BuyCar transaction processor
 * @param {org.example.cartrading.BuyCar} tx
 * @transaction
 */
async function BuyCar(tx) {
  const car = tx.car;
  const oldOwner = car.owner;
  const newOwner = tx.newOwner;

  if (!newOwner) {
```



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```
        throw new Error('Buyer not specified');
    }

    // Transfer ownership
    car.owner = newOwner;

    // Update car in registry
    const assetRegistry = await getAssetRegistry('org.example.cartrading.Car');
    await assetRegistry.update(car);

    // Emit CarPurchased event
    const factory = getFactory();
    const event = factory.newEvent('org.example.cartrading', 'CarPurchased');
    event.car = car;
    event.newOwner = newOwner;
    event.oldOwner = oldOwner;
    emit(event);
}
```

### **Step 3 — Access Control (ACL File)**

// SPDX-License-Identifier: Apache-2.0

```
rule Default {
  description: "Allow all participants read access"
  participant: "ANY"
  operation: READ
  resource: "ANY"
  action: ALLOW
}

rule SellerCanCreate {
  description: "Only Seller can add cars"
  participant(p): "org.example.cartrading.Seller"
  operation: CREATE
  resource(r): "org.example.cartrading.Car"
  condition: (r.owner.getIdentifer() === p.getIdentifer())
  action: ALLOW
}

rule BuyerCannotCreateCar {
  description: "Buyers cannot create cars"
  participant(p): "org.example.cartrading.Buyer"
  operation: CREATE
  resource: "org.example.cartrading.Car"
  action: DENY
}
```



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}

#### **Step 4 — Testing in Composer Playground**

**Participants** → Add

Seller → { "sellerId": "Seller1", "name": "Alice" }

Buyer → { "buyerId": "Buyer1", "name": "Bob" }

**Assets** → Add Car

```
{  
  "$class": "org.example.cartrading.Car",  
  "carId": "Car1",  
  "model": "Tesla Model S",  
  "price": 75000,  
  "owner": "resource:org.example.cartrading.Seller#Seller1"  
}
```

**Transactions** → **Submit BuyCar**

```
{  
  "$class": "org.example.cartrading.BuyCar",  
  "car": "resource:org.example.cartrading.Car#Car1",  
  "newOwner": "resource:org.example.cartrading.Buyer#Buyer1"  
}
```

**Expected Results:**

**Before Transaction:**

Car1.owner = Seller1

After Transaction:

Car1.owner = Buyer1

**ACL Check:**

If a Buyer tries to create a Car → PermissionDenied error.



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asset-networkadmin

DEL  
PT  
**PARTICIPANTS**  
ETS

### Assets

Add asset

ID	description		Current state
car1	Blue Honda	resource:org.example.assets.User#user1	user1