

```
# Blockchain Asset Management System
```

```
import org.hyperledger.fabric.gateway.*;
import org.hyperledger.fabric.sdk.*;
import java.nio.file.Path;
import java.nio.file.Paths;
import java.util.concurrent.TimeUnit;
```

```
public class AssetManagement {
```

```
    private final Gateway gateway;
    private final Network network;
```

```
    public AssetManagement() throws Exception {
        Path walletPath = Paths.get("wallet");
        Wallet wallet = Wallets.newFileSystemWallet(walletPath);
        gateway = Gateway.createBuilder()
            .identity(wallet, "user1")
            .networkConfig(Paths.get("connection.yaml"))
            .connect();
        network = gateway.getNetwork("mychannel");
    }
```

```
    public void createAsset(String dealerId, String msisd, String mpin, double balance, String status, double
transAmount, String transType, String remarks) throws Exception {
        Contract contract = network.getContract("assetContract");
        contract.submitTransaction("createAsset", dealerId, msisd, mpin, String.valueOf(balance), status,
String.valueOf(transAmount), transType, remarks);
    }
```

```
    public void updateAssetValue(String dealerId, double newBalance) throws Exception {
        Contract contract = network.getContract("assetContract");
        contract.submitTransaction("updateAssetValue", dealerId, String.valueOf(newBalance));
    }
```

```
    public String queryAsset(String dealerId) throws Exception {
        Contract contract = network.getContract("assetContract");
        byte[] result = contract.evaluateTransaction("queryAsset", dealerId);
        return new String(result);
    }
```

```
    public String getTransactionHistory(String dealerId) throws Exception {
        Contract contract = network.getContract("assetContract");
        byte[] result = contract.evaluateTransaction("getTransactionHistory", dealerId);
        return new String(result);
    }
```

```
    public void close() {
        gateway.close();
    }
```

```
    public static void main(String[] args) {
        try {
            AssetManagement assetManagement = new AssetManagement();
            assetManagement.createAsset("D123", "1234567890", "1234", 1000.0, "ACTIVE", 100.0, "CREDIT",
"Initial Deposit");
            System.out.println(assetManagement.queryAsset("D123"));
            assetManagement.updateAssetValue("D123", 1200.0);
            System.out.println(assetManagement.getTransactionHistory("D123"));
            assetManagement.close();
        }
    }
```

```
    } catch (Exception e) {  
        e.printStackTrace();  
    }  
}
```


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"Business"

[End Time]>[Start Time]

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"Business"

"Good"

0

"Good"

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[End Time]>[Start Time]

Today()

"Good"

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"Business"

[Subtotal]+[Tax]

0

0

No

[End Date]>[Start Date]

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"Business"

=Today()

[Delivery Date]>=Today()

No

"Not Started"

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Coalesce([Last Name]+" "+[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Full-time"

$[\text{Unit Price}] * [\text{Quantity}] * (1 - [\text{Discount}])$

0

0

0

"None"

=Today()

0

0

0

[End Time]>[Start Time]

[End Date]>=[Start Date]

"Not Submitted"

=Today()

No

Coalesce([First Name]+" "[Last Name],[Last Name],[First Name],[Email],[Company])

Coalesce([Last Name]+" "[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"


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Name],[Email],[Company])
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Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

[Subtotal]+[Tax]+[Shipping]

0

0

0

[Original Contract Sum]+[Change Orders]

[Completed Previously]+[Completed This Period]

([Completed Previously]+[Completed This Period])*0.05

([Completed Previously]+[Completed This Period])-([Completed Previously]+[Completed This Period])*0.05)+[Tax]

(((Completed Previously]+[Completed This Period])-([Completed Previously]+[Completed This Period])*0.05)+[Tax])-[Previous Payments]

0

0

0

0

0

0

Today()

"1 - New"

"1 - Critical"

=Today()

Make sure the Status and Resolution fields are in sync

[Status]="3 - Resolved"

[Resolution] Is Null

If the Status is Resolved but the Resolution is not specified, raise an error to prevent the data from being saved

You must select a resolution.

[Status]="4 - Closed"

[Resolution] Is Null

If the Status is Closed but the Resolution is not specified, raise an error to prevent the data from being saved

An issue must be resolved before it can be closed.

[Resolution] Is Not Null

If the Status is not Resolved and not Closed but a Resolution is specified, clear the resolution

Resolution

Null

Make sure the Status and Resolution fields are in sync

[Status]="3 - Resolved"

[Resolution] Is Null

If the Status is Resolved but the Resolution is not specified, raise an error to prevent the data from being saved

You must select a resolution.

[Status]="4 - Closed"

[Resolution] Is Null

If the Status is Closed but the Resolution is not specified,
raise an error to prevent the data from being saved

An issue must be resolved before it can be closed.

[Resolution] Is Not Null

If the Status is not Resolved and not Closed but a
Resolution is specified, clear the resolution

Resolution

Null

0

"Good"

0

0

0

IIf([Returned Date] Is Null,"Checked Out","Returned")

Today()

IIf([Returned Date] Is Null,"Checked Out","Returned")

Today()

IIf([Returned Date] Is Null,"Loaned","Returned")

Today()

[End Time]>[Start Time]


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Coalesce([First Name]+" "+[Last Name],[Last Name],[First  
Name],[Email],[Company])
```

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Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

0

No

Coalesce([First Name]+" "[Last Name],[Last Name],[First Name],[Email],[Company])

Coalesce([Last Name]+" "[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

[Unit Price]*[Quantity]*(1-[Discount])

0

0

0

"None"

IIf([Status]="Completed",No,Yes)

=Today()

0

0

0

"New"

Coalesce([First Name]+" "+[Last Name],[Last Name],[First Name],[Email],[Company])

Coalesce([Last Name]+" "+[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

1

No

Coalesce([First Name]+" "[Last Name],[Last Name],[First Name],[Email],[Company])

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"Business"

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Coalesce([Last Name]+" "+[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

"Open"

0

0

No

0

0

0

0

IIf([Status] In ("Completed","Deferred"),No,Yes)

[End Date]>=[Start Date]

"2 - Medium"

"Not Started"

Now()

Not Update([Changed Date])

Changed Date

Now()

0

0

0

=Today()

0

Coalesce([First Name]+" "[Last Name],[Last Name],[First
Name],[Email],[Company])

Coalesce([Last Name]+" "+[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

[Quantity]*[Unit Price]

0

0

[Unit Price]*[Quantity]*(1-[Discount])

0

0

0

"None"

IIf([Status]="Completed",No,Yes)

=Today()

0

0

0

"New"

Concat([Budget Year]," - ",[Budget Quarter])

DateDiff(MONTH,[Start Date],[End Date])*[Rental Rate]

[End Date]>=[Start Date]

0

[End Time]>[Start Time]

Coalesce([First Name]+" "+[Last Name],[Last Name],[First Name],[Email],[Company])

Coalesce([Last Name]+" "+[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

0

No

[End Time]>[Start Time]

Coalesce([First Name]+" "[Last Name],[Last Name],[First Name],[Email],[Company])

Coalesce([Last Name]+" "[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

"On Track"

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Coalesce([Last Name]+" "+[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

IIf([Status] In ("Completed", "Deferred"),No,Yes)

[Percent Complete] Between 0 And 1

"2 - Medium"

0

"Not Started"

This data macro makes sure the Status is set correctly if the Percent Complete is updated or it makes sure the Percent Complete is set correctly if the Status is updated.
Percent Complete: 0=0%, 1=100%

[Percent Complete]=0

Percent Complete is default - check Status

[Status]="Completed"

If Status is changed to Completed set Percent Complete to 100%

Percent Complete

1

[Percent Complete]=1

If Percent Complete is 100% set Status to Completed

[Status]

"Completed"

[Status]="Completed" Or [Status]="Not Started"

If Percent Complete is between 0% and 100% and the Status is either Completed or Not Started, set Status to In Progress

Status

"In Progress"

This data macro makes sure the Status is set correctly if the Percent Complete is updated or it makes sure the Percent Complete is set correctly if the Status is updated.
Percent Complete: 0=0%, 1=100%

Update([Percent Complete])

[Percent Complete]=1

If Percent Complete is changed to 100% and Status is not set to Completed, set Status to Completed

[Status] <> "Completed"

Status

"Completed"

[Percent Complete]=0

If Percent Complete is changed to 0% and Status is Completed, set Status to Not Started

[Status]="Completed"

Status

"Not Started"

[Status]="Completed" Or [Status]="Not Started"

If Percent Complete is between 0% and 100% and the Status is either Completed or Not Started, set Status to In Progress

Status

"In Progress"

Update([Status])

[Status]="Completed"

If Status is changed to Completed and Percent Complete is not 100%, set Percent Complete to 100%

[Percent Complete]<>1

Percent Complete

1

[Status]="Not Started"

If Status is changed to Not Started and Percent Complete is not 0%, set Percent Complete to 0%

[Percent Complete]<>0

Percent Complete

0

[Percent Complete]=1

If Status is changed to something other than Completed and the Percent Complete is 100%, set Percent Complete to 0%

Percent Complete

0

IIf([Status] In ("Completed","Deferred"),No,Yes)

[Percent Complete] Between 0 And 1

"2 - Medium"

0

"Not Started"

This data macro makes sure the Status is set correctly if the Percent Complete is updated or it makes sure the Percent Complete is set correctly if the Status is updated.
Percent Complete: 0=0%, 1=100%

Update([Percent Complete])

[Percent Complete]=1

If Percent Complete is changed to 100% and Status is not set to Completed, set Status to Completed

[Status]<>"Completed"

Status

"Completed"

[Percent Complete]=0

If Percent Complete is changed to 0% and Status is Completed, set Status to Not Started

[Status]="Completed"

Status

"Not Started"

[Status]="Completed" Or [Status]="Not Started"

If Percent Complete is between 0% and 100% and the Status is either Completed or Not Started, set Status to In Progress

Status

"In Progress"

Update([Status])

[Status]="Completed"

If Status is changed to Completed and Percent Complete is not 100%, set Percent Complete to 100%

[Percent Complete]<>1

Percent Complete

1

[Status]="Not Started"

If Status is changed to Not Started and Percent Complete is not 0%, set Percent Complete to 0%

[Percent Complete]<>0

Percent Complete

0

[Percent Complete]=1

If Status is changed to something other than Completed and the Percent Complete is 100%, set Percent Complete to 0%

Percent Complete

0

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Coalesce([Last Name]+" "[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

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Name],[Email],[Company])

Coalesce([Last Name]+" "+[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

0

=Today()

[Sunday]+[Monday]+[Tuesday]+[Wednesday]+[Thursday]+[Friday]+[Saturday]

([Sunday]+[Monday]+[Tuesday]+[Wednesday]+[Thursday]+[Friday]+[Saturday])*[Pay Rate]

0

0

0

0

0

0

0

DateDiff(DAY,[Start Date],[End Date])

[End Date]>=[Start Date]

"Pleasure"

Coalesce([First Name]+" "[Last Name],[Last Name],[First Name],[Email],[Company])

Coalesce([Last Name]+" "+[First Name],[Last Name],[First Name],[Email],[Company])

Coalesce([First Name],[Last Name],[Email],[Company]) Is Not Null

"Business"

Today()

"Best Way"

0

0

0