Blockchain-based Handcrafted Jewellery App (dApp)

Requirements engineering, analysis and design
Scenario: Handcrafted Jewellery

- Handcrafted jewellery refers to jewellery assembled by use of tools that are controlled by hand rather than the use of manufacturing machinery.
- Production of handcrafted jewellery happens mostly in small scale resulting in unique and very limited editions of the same product.
- Soko, Inc is a global women accessories global supply chain company with its production office in Nairobi, Kenya and sales office in San Francisco, USA.

Scenario available here.
Soko’s Handcrafted Jewellery Value Chain
Design Making Process
Design Concepts
As-Is

Business Process Flow
Initiate Invoice

1. Initiate invoice
2. Generate invoice on behalf of artisan
3. Pay invoice
4. Mark purchase order as complete
5. M-pesa transaction statement
6. Purchase order [Complete]
7. Invoice closed
Unfinished Product
Tasks 1

- Identify stakeholders
- Identify stakeholders goals

Recall lecture #3: Blockchain-based parking app (dApp)
Recall: Stakeholders and their dependencies

- **Owner**
  - Owner of the parking spot
    - Register parking spot and specify its availability

- **Renter**
  - User of the parking spot
    - Search and reserve parking spot
    - Start/end parking session
    - Extend parking session
    - Payment
Recall: Stakeholders goals

- Goal #1: Register parking spot
- Goal #2: Parking session started
- Goal #3: Parking session ended
- Goal #4: Payment handled
Tasks 2

- Select 2 stakeholders and define their dependencies using strategic rational model

*Recall lecture #3: Blockchain-based parking app (dApp)*
Recall: Stakeholders and their dependencies
Tasks 3

- Do a modelling of 2 goals using strategic rational model
  - Use a stakeholder
  - Use a blockchain-based application (dApp)

*Recall lecture #3: Blockchain-based parking app (dApp)*
Recall: Goal #1: Register parking spot
Recall: Goal #2: Parking session started
Tasks 4

- Select 2 stakeholders and build a use case diagram for blockchain-based application (dApp)
- Support one use case by using textual template

Recall lecture #3: Blockchain-based parking app (dApp)
Recall: Use case diagram
<table>
<thead>
<tr>
<th>Use case ID: name:</th>
<th>UC#1: Save Parking Spot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date created:</td>
<td>15.09.2020</td>
</tr>
<tr>
<td><strong>Actors:</strong></td>
<td>Owner</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>The owner creates the parking spots, enters its information and availability.</td>
</tr>
<tr>
<td><strong>Trigger:</strong></td>
<td>Owner wants to create and save a parking spot for renting out in the parking dApp</td>
</tr>
<tr>
<td><strong>Precondition:</strong></td>
<td>Physical parking spot is ready for the use. Owner has log in to Parking dApp.</td>
</tr>
<tr>
<td><strong>Postcondition:</strong></td>
<td>Information about parking spot and its availability is entered to the Parking dApp.</td>
</tr>
</tbody>
</table>
| **Main flow:**    | 1. Owner provides information about parking spot.  
                      2. Parking dApp registers parking spot.  
                      3. Owner provides information about parking spot availability.  
                      4. Parking dApp specifies parking spot availability.  
                      5. Owner confirms the entered information. |
| **Alternative flow:** | None |
| **Priority:**     | Must |
| **Assumptions:**  | Owner should have access to Parking dApp |
Please answer how blockchain-based application (dApp) supports to solve the following provenance issues in handcrafted jewellery business?

1. Lack of documentation to the sources of raw materials and their origins
2. Designers who create the product design specifications are not credited
3. There is no way of identifying a piece of jewellery with a specific artisan due to aggregation at the inventory check in process
4. The processes a product undergoes through are not captured and presented in a way visible to the consumers
5. Tagging is not applied at all stages in the value chain thus hindering traceability
6. The available provenance data is centrally managed in the company’s database. This raises questions of trustworthiness of data due to the possibility of data manipulation
Workshop Report Submission

Form a group of 2 members (or individually) and submit workshop solution in a continuous report via Course Website as BCT2_Workshop2.pdf

**Deadline:** Before the next lecture

Report that are handed in after the **deadline 50% of the points will be deducted**