12/12/2014

**CompSys**

Nazmul Alam (TL\_KCPSD\_DY2)

T00152975

Software Engineering: Catherine Woods

Table of Contents

1. Introduction 3

2. Functional Components 4

2.1 Hierarchy chart 4

3. User Requirements 5

3.1 The system performs staff administration 5

3.1.1 CompSys will allow the details of each new staff to be recorded. 5

3.1.2 CompSys will allow a staff details to be amended. 5

3.1.3 CompSys will generate a staff listing. 5

3.2 The system performs customer administration 5

3.2.1 CompSys will allow the details of each new customer to be recorded. 5

3.2.2 CompSys will allow a customer details to be amended. 5

3.2.3 CompSys will allow querying a customer. 5

3.2.4 CompSys will generate a customer listing. 5

3.3 The system performs repair management 5

3.3.1 CompSys will allow the details of each new repair to be recorded. 5

3.3.2 CompSys will generate a new repair estimate. 5

3.3.3 CompSys will allow the system to validate a new repair. 5

3.3.4 CompSys will issue invoices for each new repair. 5

3.3.5 CompSys will process ever repair being collected. 5

3.3.6 CompSys will generate repair report for each repair. 5

3.4 The system performs administration 5

3.4.1 CompSys will generate a list of jobs and their status. 5

3.4.2 CompSys will issue invoice for any repair at any given period. 5

3.4.3 CompSys will generate income analysis to require specification. 5

3.4.4 CompSys will allow to set repair rate. 5

4. System Requirements 6

4.1. System Level Use Case Diagram 6

4.2. Manage Staff 7

4.2.1 New Staff 7

4.2.2 Amend Staff 10

4.2.3 List Staff 13

4.3. Manage Customers 15

4.3.1 New Customer 15

4.3.2 Amend Customer 18

4.3.3 Query Customer 21

4.3.4 List Customers 24

4.4. Manage Repair 26

4.4.1 New Repair 26

4.4.2 New Estimate 27

4.4.3 Validate Repair 28

4.4.4 Collect Repair 29

4.4.5 Repair Reports 30

4.5. Manage Admin 31

4.5.1 List Jobs 31

4.5.2 Issue Invoice 32

4.5.3 Income Analysis 33

4.5.4 Set Repair Rate 34

5. Data Model 35

6. Database Schema 36

7. Program Specifications 37

8. Conclusion 38

9. References: 39

# **Introduction**

# **Functional Components**

## **Hierarchy chart**

# **User Requirements**

## **The system performs staff administration**

### CompSys will allow the details of each new staff to be recorded.

### CompSys will allow a staff details to be amended.

### CompSys will generate a staff listing.

## **The system performs customer administration**

### CompSys will allow the details of each new customer to be recorded.

### CompSys will allow a customer details to be amended.

### CompSys will allow querying a customer.

### CompSys will generate a customer listing.

## **The system performs repair management**

### CompSys will allow the details of each new repair to be recorded.

### CompSys will generate a new repair estimate.

### CompSys will allow the system to validate a new repair.

### CompSys will issue invoices for each new repair.

### CompSys will process ever repair being collected.

### CompSys will generate repair report for each repair.

## **The system performs administration**

### CompSys will generate a list of jobs and their status.

### CompSys will issue invoice for any repair at any given period.

### CompSys will generate income analysis to require specification.

### CompSys will allow to set repair rate.

# **System Requirements**

## **System Level Use Case Diagram**

**Computer Repair System**

Manager

Staff

## **Manage Staff**

This module is responsible for adding new staff, amending existing staff and listing them in ascending order of surname, forename. The staff can be set to **inactive** from the ‘amend staff’ sub-module.

### New Staff

#### UC Diagram to allow the details of each new staff to be recorded.

Staff

Manager

<<includes>>

<<extends>>

<<includes>>

<<includes>>

<<extends>>

#### UC Narrative to allow the details of each new staff to be recorded.

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Name** | **New Staff** | | **Author: Nazmul Alam** |
| **Use Case Id** | 3.1.1 | | **Date: 14/10/2014** |
| **Priority** | High | | |
| **Source** | Staff | | |
| **Primary Business Actor** | Manager | | |
| **Other Participating Actors** | Staff | | |
| **Description** | * Shop manager registers new staff in the system before they can start working in the computer repair shop. | | |
| **Preconditions** |  | | |
| **Trigger** | * Manager needs to register a new staff member | | |
| **Typical Scenario** | **Actor Action** | **System Response** | |
|  | **Step 1: The manager chooses add new staff.**  **Step 3: The manager enters the required information:**   * **Surname** * **Forename** * **DOB** * **Address 1** * **Address 2** * **Town** * **County** * **Phone** * **Email**   **Step 4: The manager confirms that the staff is to be registered** | **Step 2: The system displays create staff form.**  **Step 5:The system validates the data entered:**   * **All fields are required** * **All data type are valid**   **Step 6: The system assigns the Staff ID**  **Step 7: The system assigns Registration Date as the current system date**  **Step 8: The system assigns the staff status a default value of ‘active’**  **Step 9: The system saves the new staff details in the Staff file.**  **Step 10: The system displays a confirmation message** | |
| **Alternate Scenarios** | **Actor Action** | **System Response** | |
| **Invalid and/or Required field NOT entered** | **Step 5c: Manager re-enters the required field.** | **Step 5a: A required field is not entered**  **Step 5b: The system displays an appropriate error message and notifies the error sources** | |
| **The process continues to normal flow from Step 5** | | |
| **Conclusions** | * New staff is created. | | |
| **Post conditions** | * New staff created on the system cannot be deleted. | | |
| **Business Rules** | * Staff cannot do any repair shop work without registering on the system. | | |
| **Implementation Constraints** |  | | |

### Amend Staff

#### UC Diagram to allow staff details to be amended.

Manager

Staff

<<extends>>

<<includes>>

<<includes>>

<<extends>>

#### UC Narrative to allow staff details to be amended.

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Name** | **Amend Staff** | | **Author: Nazmul Alam** |
| **Use Case Id** | 3.1.2 | | **Date: 22/10/2014** |
| **Priority** | Medium | | |
| **Source** | Staff | | |
| **Primary Business Actor** | Manager | | |
| **Other Participating Actors** | Staff | | |
| **Description** | * The **manager** must enter **updated** staff details and save them to the staff file. | | |
| **Preconditions** | * New staff should supply updated details. | | |
| **Trigger** | * Staff requests staff details to be amended. | | |
| **Typical Scenario** | **Actor Action** | **System Response** | |
|  | **Step 1: Staff makes an application to amend details of the staff file and submits new staff details.**  **Step 2: Manager requires these details to query for the staff:**   * **Surname** * **Forename** * **DOB** * **Town**   **Step 5: The manager starts to enter new staff details to the system.**   * **Address 1** * **Address 2** * **Town** * **County** * **Phone** * **Email** * **Status** | **Step 3: The system retrieves all the staff details from the staff file.**  **Step 4: The system will not allow to amend:**   * **Surname** * **Forename** * **DOB**   **Step 6:The system validates the data entered:**   * **All fields are required** * **All data type are valid**   **Step 7: The system adds Amend Date as the current system date**  **Step 8: The system amends the new staff details in the Staff file. A Message is displayed to the screen to inform the manager that the staff details have been updated.** | |
| **Alternate Scenarios** | **Actor Action** | **System Response** | |
| **Invalid and/or Required field NOT entered** | **Step 6c: Manager re-enters the required field.** | **Step 6a: Invalid data and/or required field is not entered**  **Step 6b: The system displays an appropriate error message and notifies the error sources** | |
| **The process continues to normal flow from Step 6** | | |
| **Conclusions** | * The staff details are amended and saved to the staff file | | |
| **Post conditions** | * The staff requires for details to be amended | | |
| **Business Rules** | * Staff cannot be deleted from the system. They can only be set to ‘active’ or ‘inactive’. | | |
| **Implementation Constraints** |  | | |

### List Staff

#### UC Diagram to generate a staff listing.

Staff

Manager

<<includes>>

#### UC Narrative to generate a staff listing.

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Name** | **List Staff** | | **Author: Nazmul Alam** |
| **Use Case Id** | 3.1.3 | | **Date: 24/10/2014** |
| **Priority** | Low | | |
| **Source** | Staff | | |
| **Primary Business Actor** | Manager | | |
| **Other Participating Actors** | Staff | | |
| **Description** | Manager/Staff wishes to access the details of all active staff. This requires the system to generate a list of all the staff registered on the system. | | |
| **Preconditions** | * Staff file should exist in the system. * Staff are allowed to use this module if they are authorised by the shop manager. | | |
| **Trigger** | * Shop manager wants to list all the staff. | | |
| **Typical Scenario** | **Actor Action** | **System Response** | |
|  | **Step 1: The manager requests a list of all the staff.**  **Step 3: The manager requests a printed copy of the staff list.** | **Step 2: The system retrieves details of all current staff from the staff file and displays them on the interface (UI).**  **Step 4: The system generates a printed list based on the retrieved data and sends to the default print device.**  **Step 5: The system displays a confirmation message.** | |
| **Alternate Scenarios** | **Actor Action** | **System Response** | |
|  |  |  | |
|  |  | | |
| **Conclusions** | * A listing of all the staff is generated/printed. | | |
| **Post conditions** | * Details of the staff displayed cannot be amended or deleted. | | |
| **Business Rules** | * Staff details may only be viewed, not changed or deleted, when displayed in this way. * The list should include only current staff. | | |
| **Implementation Constraints** |  | | |

## **Manage Customers**

This module is responsible for adding new customer, querying and amending existing customer accounts and listing them in ascending order of surname, forename. The customer can be set to **inactive** from the ‘amend customer’ sub-module.

### New Customer

#### UC Diagram to allow the details of each new customer to be recorded.

Staff

Manager

<<includes>>

<<extends>>

<<includes>>

<<includes>>

<<extends>>

#### UC Narrative to allow the details of each new customer to be recorded.

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Name** | **New Customer** | | **Author: Nazmul Alam** |
| **Use Case Id** | 3.2.1 | | **Date: 24/10/2014** |
| **Priority** | High | | |
| **Source** | Manager, Staff | | |
| **Primary Business Actor** | Staff | | |
| **Other Participating Actors** | Manager | | |
| **Description** | * Shop staff/manager registers new customer in the system before they can proceed with a new repair. | | |
| **Preconditions** |  | | |
| **Trigger** | * Shop staff/manager needs to register a new customer. | | |
| **Typical Scenario** | **Actor Action** | **System Response** | |
|  | **Step 1: The staff/manager chooses add new customer.**  **Step 3: The staff/manager enters the required information:**   * **Surname** * **Forename** * **DOB** * **Address 1** * **Address 2** * **Town** * **County** * **Phone** * **Email**   **Step 4: The staff/manager confirms that the staff is to be registered** | **Step 2: The system displays create customer form.**  **Step 5:The system validates the data entered:**   * **All fields are required** * **All data type are valid**   **Step 6: The system assigns the Customer ID**  **Step 7: The system assigns Registration Date as the current system date**  **Step 8: The system assigns the customer status a default value of ‘active’**  **Step 9: The system saves the new customer details in the *Customer File.***  **Step 10: The system displays a confirmation message** | |
| **Alternate Scenarios** | **Actor Action** | **System Response** | |
| **Invalid data type and/or Required field NOT entered** | **Step 5c: Staff/Manager re-enters the required field.** | **Step 5a: A required field is not entered and/or invalid data type.**  **Step 5b: The system displays an appropriate error message and notifies the error sources** | |
| **The process continues to normal flow from Step 5** | | |
| **Conclusions** | * New customer is created and in the customer file. | | |
| **Post conditions** | * New customer created on the system cannot be deleted. | | |
| **Business Rules** | * Customers cannot proceed with any repairs without registering on the system. | | |
| **Implementation Constraints** |  | | |

### Amend Customer

#### UC Diagram to allow customer details to be amended.

Manager

Staff

<<extends>>

<<includes>>

<<includes>>

<<extends>>

#### UC Narrative to allow customer details to be amended.

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Name** | **Amend Customer** | | **Author: Nazmul Alam** |
| **Use Case Id** | 3.2.2 | | **Date: 22/10/2014** |
| **Priority** | Medium | | |
| **Source** | Staff, Manager | | |
| **Primary Business Actor** | Manager | | |
| **Other Participating Actors** | Staff | | |
| **Description** | * The **manager/staff** must enter **updated** staff details and save them to the staff file. | | |
| **Preconditions** | * New customer should supply updated details. | | |
| **Trigger** | * Customer requests ‘customer details’ to be amended. | | |
| **Typical Scenario** | **Actor Action** | **System Response** | |
|  | **Step 1: Customer makes an application to amend details of the customer file and submits new customer details.**  **Step 2: Manager/staff requires these details to query for the customer:**   * **Surname** * **Forename** * **DOB** * **Town**   **Step 5: The manager/staff starts to enter new customer details to the system.**   * **Address 1** * **Address 2** * **Town** * **County** * **Phone** * **Email** * **Status** | **Step 3: The system retrieves all the customer details from the customer file.**  **Step 4: The system will not allow to amend:**   * **Surname** * **Forename** * **DOB**   **Step 6:The system validates the data entered:**   * **All fields are required** * **All data type are valid**   **Step 7: The system adds Amend Date as the current system date**  **Step 8: The system amends the new customer details in the Customer File. A Message is displayed to the screen to inform the details have been updated.** | |
| **Alternate Scenarios** | **Actor Action** | **System Response** | |
| **Invalid and/or Required field NOT entered** | **Step 6c: Manager/Staff re-enters the required field.** | **Step 6a: Invalid data and/or required field is not entered**  **Step 6b: The system displays an appropriate error message and notifies the error sources** | |
| **The process continues to normal flow from Step 6** | | |
| **Conclusions** | * The customer details are amended and saved to the customer file | | |
| **Post conditions** | * The customer requires for details to be amended | | |
| **Business Rules** | * Customer cannot be deleted from the system. They can only be set to ‘active’ or ‘inactive’. | | |
| **Implementation Constraints** |  | | |

### Query Customer

#### UC Diagram to allow querying a customer.

<<includes>>

Manager

Staff

<<extends>>

<<includes>>

<<includes>>

<<extends>>

#### UC Narrative to allow querying a customer.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Use Case Name** | **Query Customer** | | | **Author: Nazmul Alam** |
| **Use Case Id** | 3.2.3 | | | **Date: 22/10/2014** |
| **Priority** | Medium | | | |
| **Source** | Staff, Manager | | | |
| **Primary Business Actor** | Staff | | | |
| **Other Participating Actors** | Manager | | | |
| **Description** | * The **manager/staff** queries for an existing customer. Details of the customer can be printed. | | | |
| **Preconditions** |  | | | |
| **Trigger** | * Staff/Manager requires detailed customer information. | | | |
| **Typical Scenario** | **Actor Action** | | **System Response** | |
|  | **Step 1: Customer brings new repair.**  **Step 2: Manager/staff requires these details to query for the customer:**   * **Surname** * **Forename** * **DOB** * **Town**   **Step 5: Manager/Staff reviews Customer Profile, if the customer exists in the system, the manager/staff opens the new repair module.**  **Step 6: Manager/Staff chooses Yes/No option.** | | **Step 3: System validates the entry.**   * **Surname, Forename, DOB and Town are required** * **All data are valid**   **Step 4: The system retrieves all the customer details from the customer file and/or the repairs file.**  **Step 5: System asks if the customer details needs to be printed before exiting.**  **Step 7: A detailed customer record is printed.**  **Step 8: System goes to repair module and exists the query module.** | |
| **Alternate Scenarios** | **Actor Action** | | **System Response** | |
| **Invalid and/or Required field NOT entered**  **Manager/Staff wants to find out existing/past repairs** | **Step 3c: Manager/Staff re-enters the required field.** | | **Step 3a: Invalid data and/or required field is not entered**  **Step 3b: The system displays an appropriate error message and notifies the error sources** | |
| **The process continues to normal flow from Step 3** | | | |
| **Step 1: Manager/Staff wants to find out existing/past repairs for a specific customer.** |  | | |
| **The process continues to normal flow from Step 2** | | | |
| **Conclusions** | * Manager/staff retrieves customer details. * Customer details are printed. | | | |
| **Post conditions** | * Customer requires new repair * Manager/Staff needs to check past/existing repair | | | |
| **Business Rules** |  | | | |
| **Implementation Constraints** |  | | | |

### List Customers

#### UC Diagram to generate a customer listing.

Staff

Manager

<<includes>>

#### UC Narrative to generate a customer listing.

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Case Name** | **List Customers** | | **Author: Nazmul Alam** |
| **Use Case Id** | 3.2.4 | | **Date: 24/10/2014** |
| **Priority** | Low | | |
| **Source** | Staff, Manager | | |
| **Primary Business Actor** | Staff | | |
| **Other Participating Actors** | Manager | | |
| **Description** | Manager/Staff wishes to access the details of all active customers. This requires the system to generate a list of all the customers registered on the system. | | |
| **Preconditions** | * Customer file should exist in the system. | | |
| **Trigger** | * Shop manager/staff wants to list all the customers. | | |
| **Typical Scenario** | **Actor Action** | **System Response** | |
|  | **Step 1: The manager requests a list of all the staff.**  **Step 3: The manager requests a printed copy of the staff list.** | **Step 2: The system retrieves details of all current staff from the staff file and displays them on the interface (UI).**  **Step 4: The system generates a printed list based on the retrieved data and sends to the default print device.**  **Step 5: The system displays a confirmation message.** | |
| **Alternate Scenarios** | **Actor Action** | **System Response** | |
|  |  |  | |
|  |  | | |
| **Conclusions** | * A listing of all the staff is generated/printed. | | |
| **Post conditions** | * Details of the staff displayed cannot be amended or deleted. | | |
| **Business Rules** | * Staff details may only be viewed, not changed or deleted, when displayed in this way. * The list should include only current staff. | | |
| **Implementation Constraints** |  | | |

## **Manage Repair**

### New Repair

### New Estimate

### Validate Repair

### Collect Repair

### Repair Reports

## **Manage Admin**

### List Jobs

### Issue Invoice

### Income Analysis

### Set Repair Rate

# **Data Model**

# **Database Schema**

# **Program Specifications**

# **Conclusion**

# **References:**

<http://www.academia.edu/3046773/Requirement_Analysis_Document_for_Recruitment_Management_System>