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User Requirements Specification

1. Introduction:

Date: 21/11/2021
Location: MS Teams
Members:

- Rawan Alhabsi
- Stefan Popescu
- Anna Kowalewska
- Hristo Tanchev

Tutor: Georgiana Manolache

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2. Revision table:

Version/ Status	Description	Author	Date
0.1	Started the URS	Stefan Popescu, Rawan Alhabsi, Anna Kowalewska, Hristo Tanchev	09/09/2021
0.2	Updating GUI C# Application		12/10/2021
0.3	Update after the first iteration phase		21/11/2021

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3. Agreements with client:

- Agreed to schedule meeting on site based on the client's program

The project is going to have 3 phases but the one we are going to focus on is the first one:

- The first phase has to be focused on:
  - Delivering an URS document containing a revision table, a table of contents, agreements with client section, functional requirements, use cases, and also a GUI
  - Coming up with a logo and also a team name
  - The start of coding for an intermediate version
  - Focus on delivering the add/remove (but still keeping his old data)/update employee function and schedule(assign/edit/view) of the employees and also see the statistics of the employees

-The 2nd phase will be divided in multiple Iterations starting with the first one we decided to focus on:

-Creating a website available for the employees working for Media bazaar

-The website should present the following features: login, see schedule, statistics and the feature to edit information about employees (name, phone number, address)

-In the 2nd iteration we decided to focus on:

-Creating the product management system that presents the following features: add/view/edit/remove products, see stocks, add stock requests, sell products

-Creating the form for the deport workers in which they will see the stock requests and either approve or deny them, moreover they can see the stock request history.

-A 2nd version of the website in which the employee can say when they are not available

-In the 3rd iteration we decided to focus on:

-Developing an automated scheduling system that will take into account different parameters such as: contract type, days off

-Creating the department management system in which the admin can create/view/edit/remove departments and also assign employees to it.

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4.Function Requirements

4.1 C# application – HR Manager

FR	Priority (MSCW)
FR-01: User must be able to manually assign work shifts for each of the employees.	M
FR-02 User must be able to auto assign all of the unassigned employees to a work shift	M
FR-03: User must be able to unassign work shifts for an employee.	M
FR-04: User must be able to display all of the employees' work shifts in a calendar.	M
FR-05: User must be able to store data about the employees into the system: -First name; Last name; Gender; Birth date; Username; Password; Email address; Contract type; First working date; Address; Hourly wage; Last working day; Department	M
FR-06: User should be able to edit data about the employees.	S
FR-07: User must be able to remove employees from the company's system.	M
FR-08: User should be able to hire employees ahead of time.	S
FR-09: User should be able to indicate that an employee is no longer part of the company.	S
FR-10: User must be able to view the list of employees and search for individuals by ID.	M
FR-11: User must be able to log in.	M
FR-12: User must be able to log out.	M

FR-13: User must be able to add a department.	M
FR-14: User must be able to remove a department.	M

FR-15: User must be able to modify department.	M
FR-16: User must be able to search a department by ID.	C
FR-17: User must be able to view active employees in a selected department.	M
FR-18: User must be able to view all employees on a selected department.	M
FR-19: User must be able to add a department manager to the Department.	M
FR-20: User must be able to view departments	M

4.2 C# application – General Manager

FR-21: User must be able to view individual statistics about each of the company's workers: • Total numbers of hours worked. • Attendance rate. • Total days at the company.	M
FR-22: User must be able to view the following statistics for a selected date (cannot be in future): • Total number of employees. • Total salary paid. • Total number of hours worked. • Attendance rate	M
FR-23: User must be able to view the following statistics for a selected time period (cannot be in future): • Total amount of salaries paid. • Total numbers of hours worked. • Average hourly wage per employee • Average numbers of hours worked by an employee. • Average number of employees per work shift • Attendance rate	M
FR-24: User must be able to filter the employees by department.	C
FR-25: User must be able to view individual statistics of each product of the company in a selected time period: • Turnover of the product. • Number of items sold.	M
FR-26: User must be able to view overall statistics of the products in a selected period.	M
FR-27: User must be able to filter products by department.	C
FR-28: User must be able to log in.	M
FR-29: User must be able to log out.	M

4.3 Website – Employees

FR-30: User must be able to log in.	M
FR-31: User must be able to log out.	M
FR-32: When a user logs in for the first time, he/she should be greeted with a mandatory request to change his/her password.	M
FR-33: User must change his/her password through the request when first log in.	M
FR-34: Employee will be able to change his/her Family name through the website.	M
FR-35: Employee will be able to change his/her Password through the website.	M
FR-36: Employee will be able to change his/her Address through the website.	M
FR-37: Employee will be able to change his/her Profile Picture through the website.	C
FR-38: User must be able to view his work-schedule.	M
FR-39: An employee can indicate a non-preferable working days.	S
FR-40: An employee can indicate that she/he doesn't prefer to on a night shift.	S
FR-41: Employee can Check-in when his work shift begins	M
FR-42: Employee can Check-out at the end of his work shift	M
FR-43: Employee can call in sick	M
FR-44: Employee can upload a profile picture	C

4.4 C# Application – Product Management

FR-45: User must be able to store new product info to the system: - price(for buying and selling) - brand - description - measurements - size (for stock purposes- small, medium, big)	M
FR-46: After the user enters the data about the product the products should be stored on a selected shelf by the user	M
FR-47: User must be able to view the products and the data of the products.	M
FR- 48: User must be able to select a product from the table.	S
FR-49: User must be able to remove a product form the form system.	M
FR-50: User must be able to modify a product and its details.	M

4.5 C# Application – Cashier Form

FR-51: User must be able to select a product.	M
FR-52: User must select quantity of the selected product to sell it.	M
FR-53: User must be able to sell the selected product.	M
FR-54: User can search for product by name.	S
FR-55: User must be able to view products prices.	M
FR-56: User must be able to get the total price of selected price and quantity	M

4.6 C# Application – Depot Form

FR-57: User must be able to select a restock request.	M
FR-58: User must be able to accept the selected restock request.	M
FR-59: User must be able to reject the selected restock request.	M

4.7 C# Application – Store Manager Form

FR- 60: User must be able to add a shelf to the system.	M
FR-61: User must be able to remove shelfs from the system	C
FR-62: User must be able to edit a selected shelf	S
FR-63: User must be able to view a list of all of the shelfs in the system.	M

5. Non-Functional requirements

- The Program can be extended in the future. The code is maintainable and readable, which allows future developers to easily understand how the application works and allows them to add new features without having to communicate with the previous developers.
- The program is reliable, which means the state of the application is going to be stable and will not have frequent crashes. This can be achieved by writing a high-quality code, which can avoid many of the errors a program can usually encounter while running. Proper error-handling will be implemented as well as different object-oriented concepts such as inheritance, interfaces and others.

6. Use cases:

I) Logging in

Description	User attempts to log in into the application.
Actors	HR Manager, Products Manager, Store Manager, General Manager.
Precondition	User must be an employee of Media Bazaar.
Trigger	User opens the application.
Normal flow	1) User enters username and password. 2) User's credentials are approved by the system. 3) System checks what type of user they are. 4) System displays a view based on the user's type.
Alt. flow	2.a) User's credentials are not recognized by the system. – System displays an error message. – Return to step 1.

II) Adding employee

Description	HR hires a new employee and must add them to the system.
Actors	HR Manager.
Precondition	User is logged in as a HR Manager and is viewing the add employees' section.
Trigger	User intends on creating new entry in the employee management window.
Normal flow	1) User introduces all requested data in the form. 2) User presses the "add" button.

	3) System asks for confirmation. 4) User confirms by clicking the “yes” button. 5) System stores new data and shows a success message.
Alt. flow	2.a) System declines the data. – System displays an error message. – Return to step 1. 4.a) User clicks “no”. – Return to step 1.

III) Removing employee

Description	HR has to remove an employee from the system.
Actors	HR Manager.
Precondition	User is logged in as a HR Manager and is viewing the employees’ section.
Normal flow	1) User selects the required employee from the list. 2) System highlights the selected employee. 3) User clicks the “remove” button. 4) System asks for confirmation. 5) User confirms by clicking the “yes” button. 6) System removes the data and shows a success message.
Alt. flow	5.a) User clicks “no”. – Return to step 1.

IV) Editing employee information

Description	User wishes to edit information of a specific user.
Actors	HR Manager.
Precondition	User is logged in as a HR Manager and is viewing the employees’ section.
Normal flow	1) User selects the employee from the list. 2) System highlights the selected employee. 3) User modifies desired data. 4) User clicks the “save” button. 5) System saves the data and shows a success message.
Alt. flow	5.a) System shows an error message because of wrong data. – Return to step 3.

V) Assigning shifts

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Description	User wishes to create the weekly schedule.
Actors	HR Manager.
Precondition	User is logged in as a HR Manager and is accessing the shifts section.
Normal flow	1) User selects desired day. 2) User selects a desired working-shift. 3) System opens a tab containing all available employees. 4) User selects the desired employee and assigns them. 5) System asks for confirmation. 6) User confirms by clicking the "yes" button. 7) System completes and shows a success message.
Alt. flow	6.a) User clicks "no". – End of use case.

VI) Removing shifts

Description	User wishes to remove specific shifts.
Actors	HR Manager.
Precondition	User is logged in as a HR worker and is accessing the shifts section.
Normal flow	1) User selects the desired date. 2) User selects the employee. 3) User clicks the "remove" button. 4) System asks for confirmation. 5) User confirms by clicking the "yes" button. 6) System completes and shows a success message.
Alt. flow	1.a) User selects a date which has no employee assigned to it. – Return to step 1. 3.a) User doesn't select the employee. – Show error message and return to step 2. 5.a) User clicks "no". – End of use case.

VII) Viewing shifts

Description	User wishes to view the weekly schedule.
Actors	HR Manager.
Precondition	User is logged in as a HR Manager and is accessing the shifts section.
Normal flow	1) User selects a date from the calendar. 2) System shows a new window with all shifts and assigned employees.

VIII) Adding product

Description	User wants to add a new product.
Actors	Product Manager.
Precondition	User is logged in as a Product Manager and is viewing the product management section.
Normal flow	1) User fills in required data. 2) User clicks on “add product” button. 3) System registers a new product and shows a success message.
Alt. flow	2.a) System declines the data. – System displays an error message. – Return to step 1.

IX) Editing product

Description	User wants to edit a specific product.
Actors	Product Manager.
Precondition	User is logged in as a Product Manager and is viewing the product management section.
Normal flow	1) User chooses the product. 2) System loads the current product data and shows it in separate fields. 3) User modifies desired data. 4) User clicks the “edit” button. 5) System saves changes and shows a success message.
Alt. flow	4.a) System declines the data. – System displays an error message. – Return to step 1.

X) Removing products

Description	User wishes to remove specific product.
Actors	Product Manager.
Precondition	User is logged in as a Product Manager and is accessing the product management section.
Normal flow	1) User selects the desired product. 2) User clicks the “delete” button. 3) System asks for confirmation. 4) User confirms by clicking the “yes” button. 5) System completes and shows a success message.
Alt. flow	4.a) User clicks “no”. – End of use case.

XI) Viewing product stock

Actors	Product Manager.
Precondition	User is logged in as a Product Manager and is accessing the product management section.
Normal flow	1) User selects a date from the calendar 2) System shows a new window with all shifts and assigned employees.

XII) Making a stock request

Actors	Product Manager.
Precondition	User is logged in as a Product Manager and is accessing the product management section.
Trigger	A product in the store must be supplemented.
Normal flow	1) User makes a new stock request. 2) System opens a new form. 3) User enters the required details and confirms the request. 4) System sends request to the Stock Requests Form.

Alt. flow	3.a) User does not provide information on name, quantity or department. – System displays a message asking for filling in the required information. – Return to step 4. 4.a) There is not enough stock in the depot. – System displays a message with information that it is not possible due to the stock unavailability. – Return to step 4.

XIII) Accepting or denying a stock request

Actors	Depot Worker.
Precondition	User is logged in as a depot worker and is viewing the Stock Requests Form.
Trigger	Product Manager sends a stock request.
Normal flow	1) System loads all stock requests and displays them in the form. 2) User chooses 'accept' or 'deny' next to any of the stock requests. 3) System performs the requested action and updates the database and the application.

XIV) Adding a department to the system

Actors	HR Manager
Precondition	User is logged in as a HR Manager
Trigger	User is logged in as a HR Manager and is accessing the Department Management to add a department
Normal flow	1) User should type a name of the new department. 2) User should pick a department manager from the drop-down menu. 3) User should click the button "Add Department" after filling all of the necessary inputs. 4) The system creates a department where it display on the date view grid.

XV) Removing a department from the system

Actors	HR Manager
Precondition	User is logged in as HR Manager

Trigger	User is logged in as a HR Manager and is accessing the Department Management to remove a department
Normal flow	1) User must select a department from the data grid view. 2) User must click on the “Remove Department” button. 3) The system sends a conformation massage if the user is sure if he/she wants to complete this action. 4) User clicks “Yes” and the system deletes the department.
Alt. flow	4.a) User clicks “No” . - The system cancels the deletion action of the department

XVI) Editing a department in the system

Actors	HR Manager
Precondition	User is logged in as a HR Manger
Trigger	User I logged in as HR Manger and accessing the Department Management to edit a department
Normal flow	1) User must select a department from the data grid view. 2) The fields get fields with data and the user edits the field he/she wants to edit. 3) User click the “Edit department” button and gets a conformation massage that the department was successfully edited.

XVII) Logging into the Employee web application

Actors	Employee
Precondition	User must be an employee of Media Bazaar.
Trigger	User opens the web application.
Normal flow	1)User enters username and password. 2)User’s credentials are approved by the system. 3) System redirects user to “Home” page.
Alt. flow	2.a) User’s credentials are not recognized by the system. – System displays an error message. – Return to step 1.

XVIII) Log out of web application

Actors	Employee
Precondition	User must be logged in on the Employees website.
Normal flow	1)User clicks the "Log out" button on the navigation bar. 2)System logs the user out. 3) User can no longer access the website (until they login).

XIX) Terminate employee's contract

Actors	HR Manager.
Precondition	User is logged in as a HR Manager and is viewing the employees' section.
Normal flow	1) User selects the desired employee from the list. 2) System highlights the selected employee. 3) User clicks the "terminate contract" button. 4) System opens new tab. 5) User chooses the end date and enters a reason for terminating the contract. 6) System saves the information and marks the employee's contract as terminated.
Alt. flow	5.a) User does not provide own data. – System sets the end date to the current day and departure reason to "Not given." – Continue to step 6.

XX) Search employee

Actors	HR Manager.
Precondition	User is logged in as a HR Manager and is viewing the employees' section.
Normal flow	1) User enters any data in the search bar. 2) System checks the employees' list for any matches. 3) Employee(s) having the matching data is displayed in the list.
Alt. flow	3.a) No employee is matching the entered data. – List stays empty.

XXI) View employees' statistics

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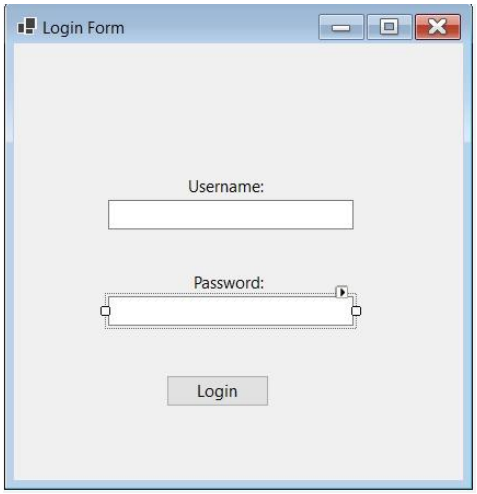
Actors	HR Manager.
Precondition	User is logged in as a HR Manager and is viewing the employees' section.
Normal flow	1) User clicks the "View statistics" button 2) System opens new form with tabs. 3) System loads the statistics charts one per each tab.

XXII) View employee's schedule in the web application

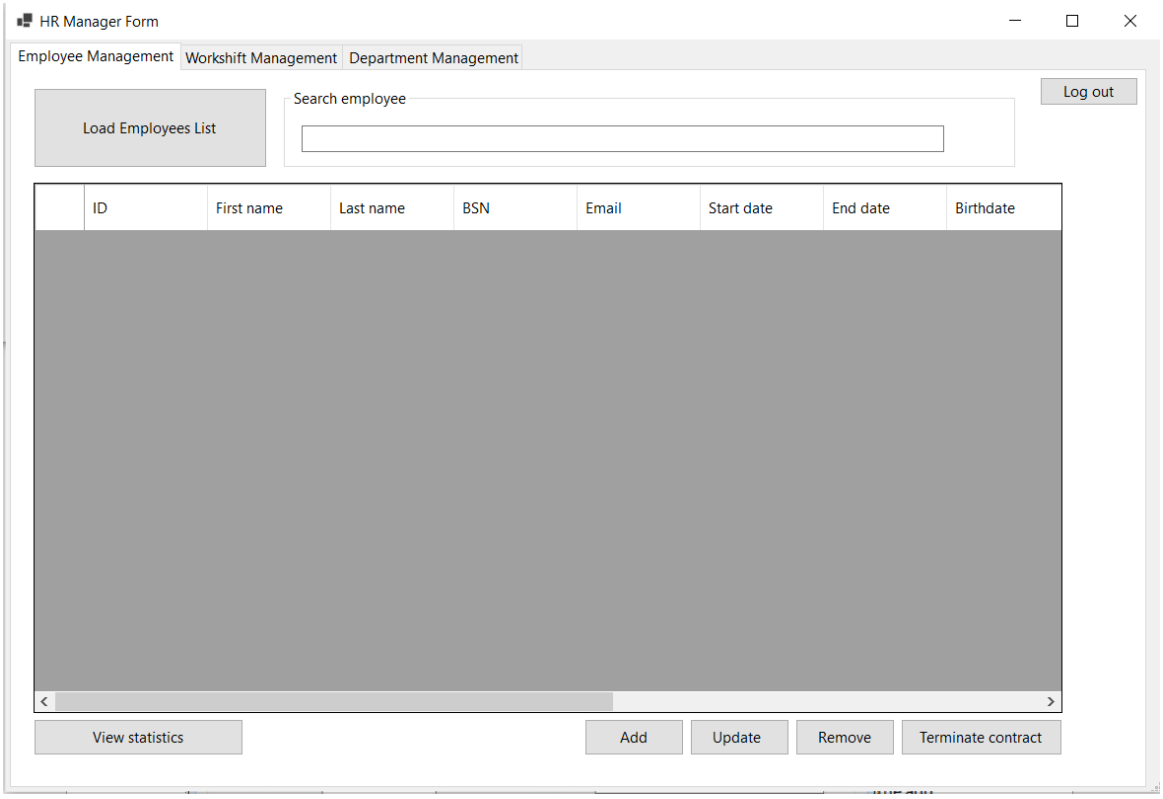
Description	User wishes to view their schedule.
Actors	Employee
Precondition	User is logged in on the website.
Normal flow	1) User navigates to the schedule page. 2) System displays user's shifts for this month.

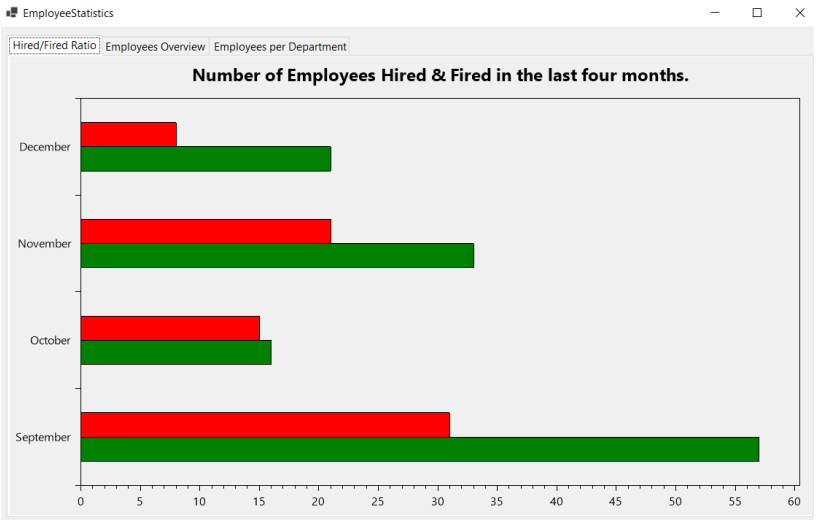
7. GUI C# Application



Here the User is in the Log in form where he/she can log in as one of the many manager roles from the company.

Here the User is in the Employee Manager Form where he/she has access to Create, Read, Update, Delete (CRUD) functions. The user is also able to search and employee by providing any data in the search bar and view employees' statistics form.





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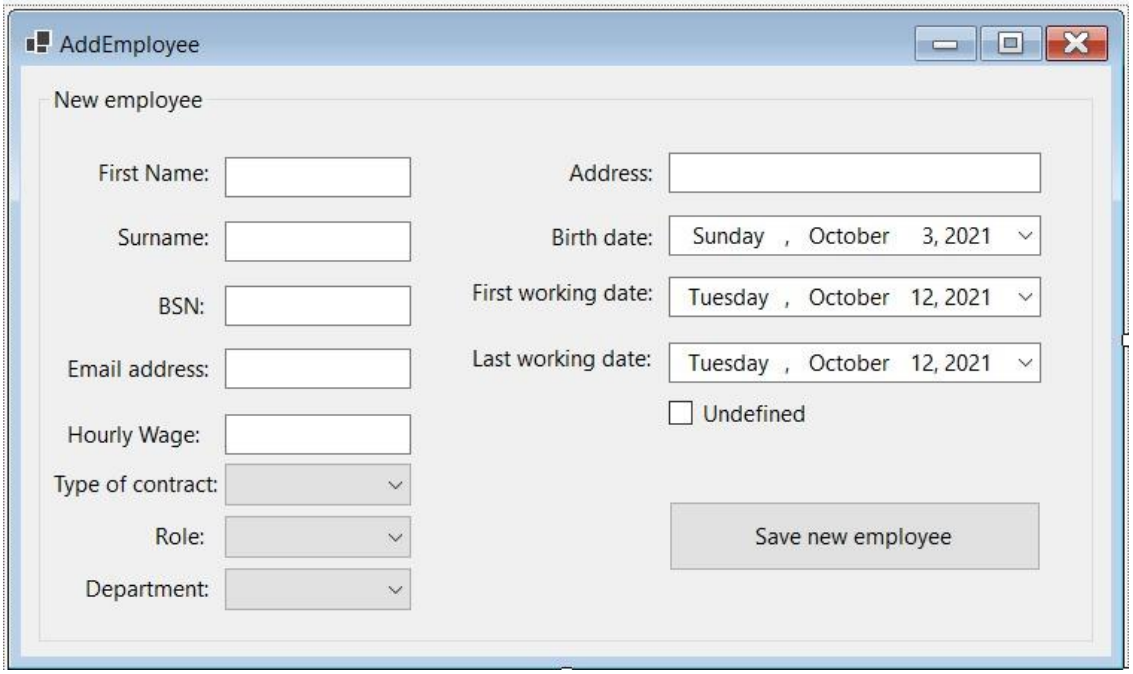

This is the add employee form in which the admin can register an employee in the system

*The contract type is split in 2:

- Part time: 32 hours of work/week

- Full time: 40 hours of work/week

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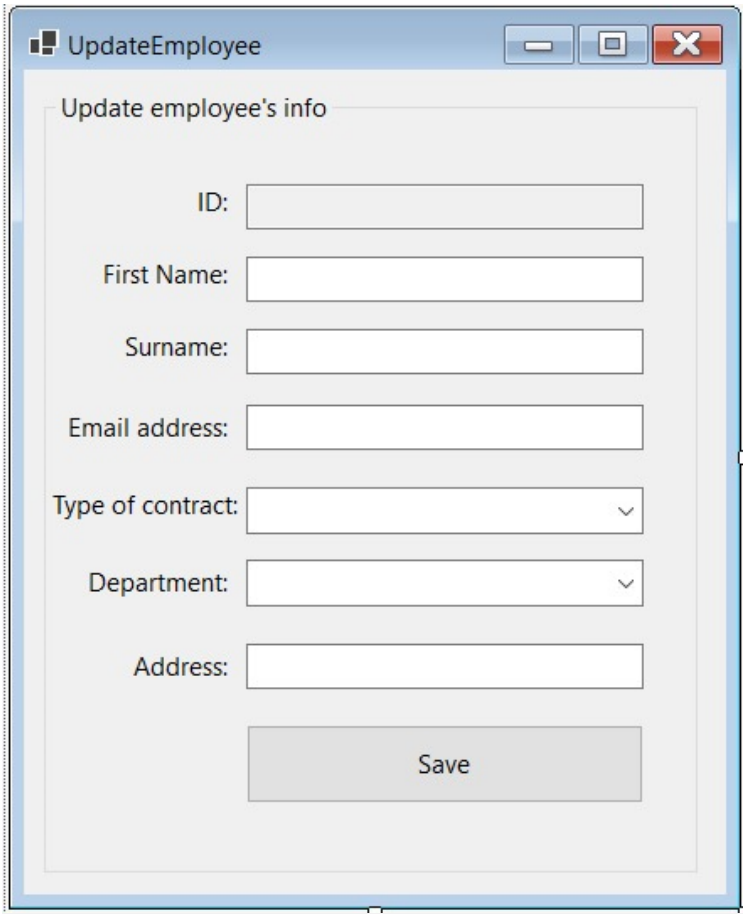

Here the User is in the Edit/Update Employee where the employee information can be changed. To get to this page the user must select an employee from the data grid in HR Manager and click the “Update” button.

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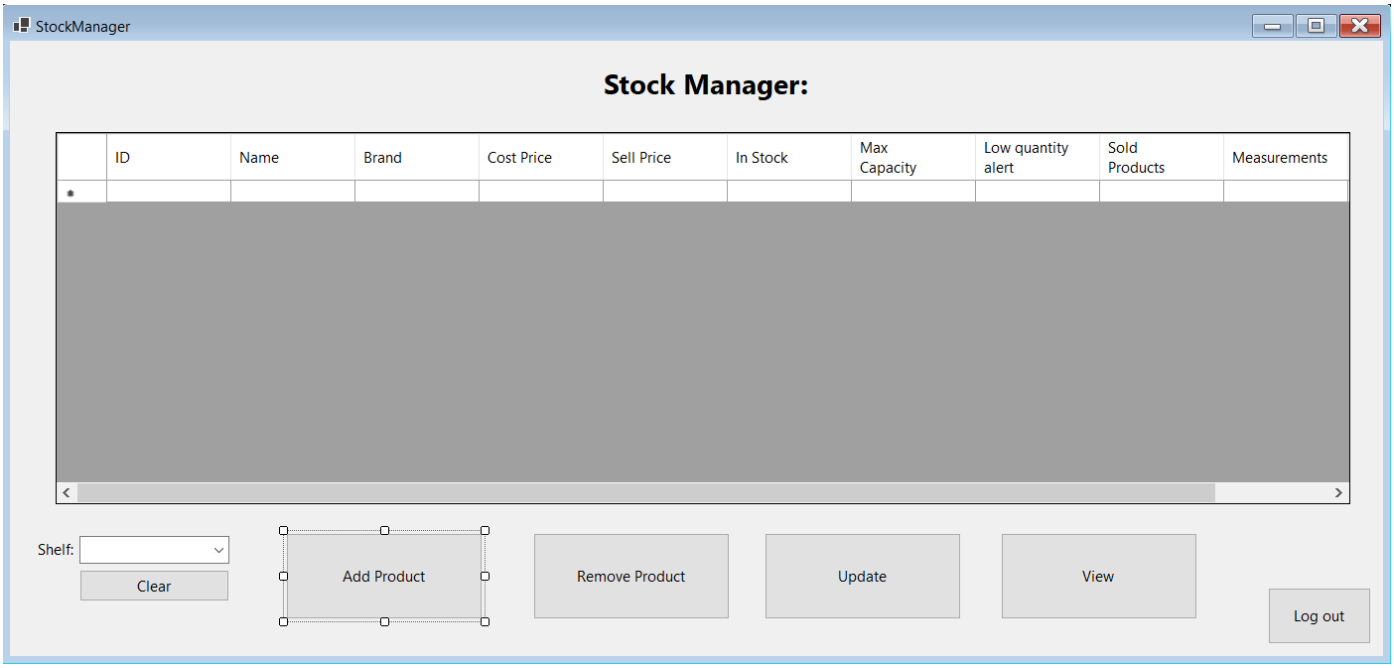

This is the Product Manager Form where the admin can Create, Read, Update, Delete (CRUD) products.

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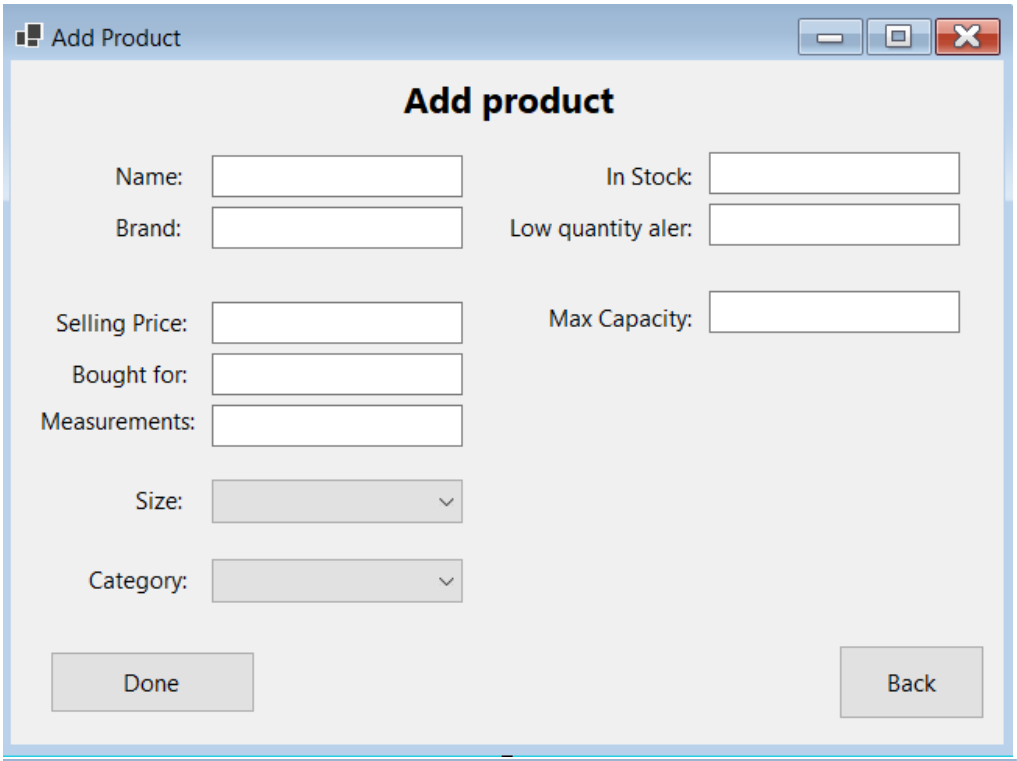
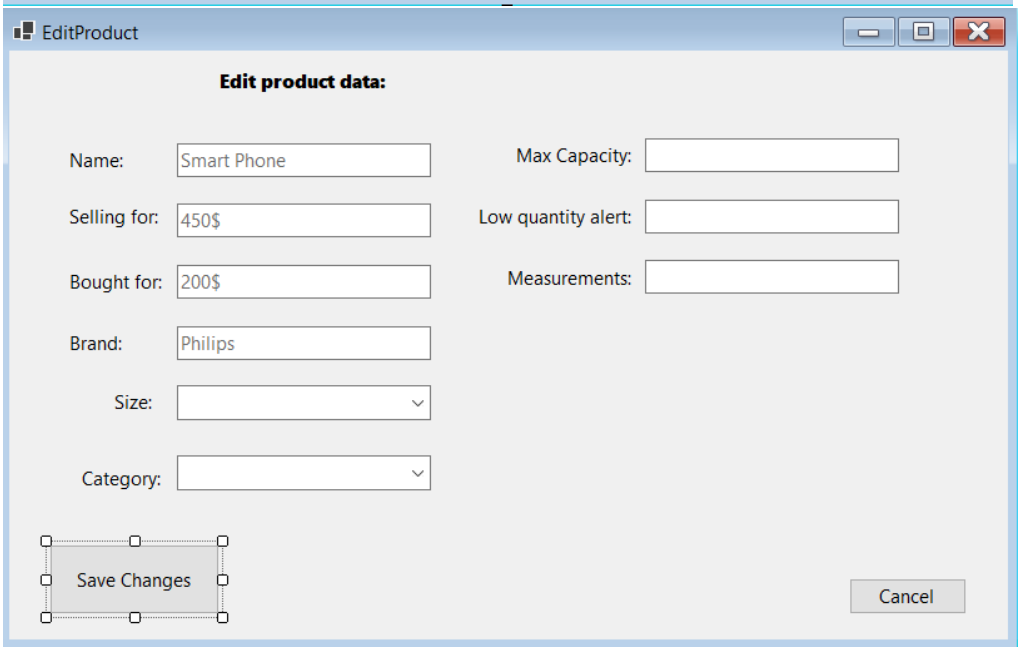


Here the user can Add/Create a product to the system. To open this window the user must click the “Add” button.



Here the user can Edit/Update a selected product. To open this window the user must select a product from the data grid and click the “Update” button.

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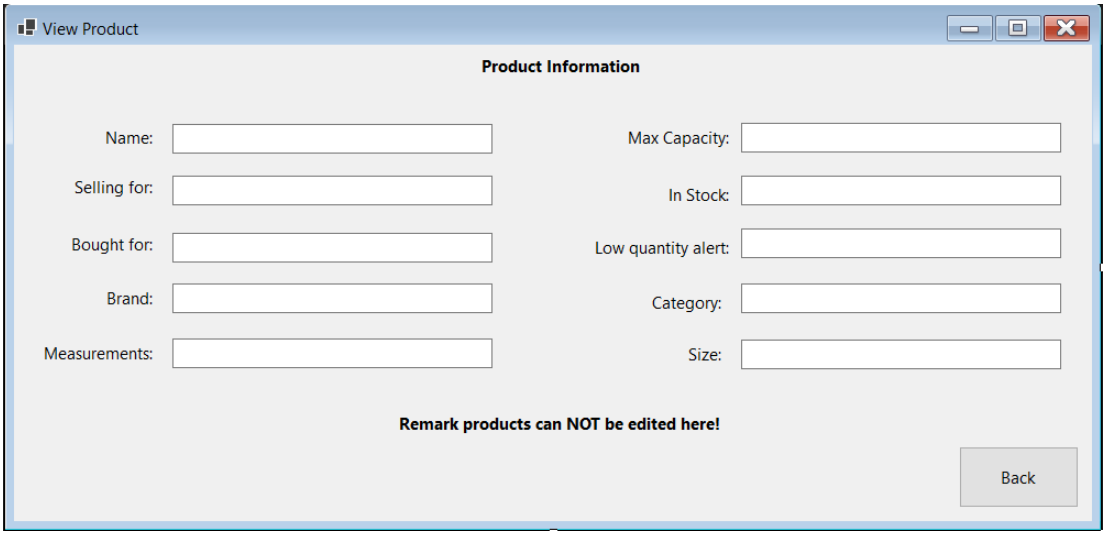
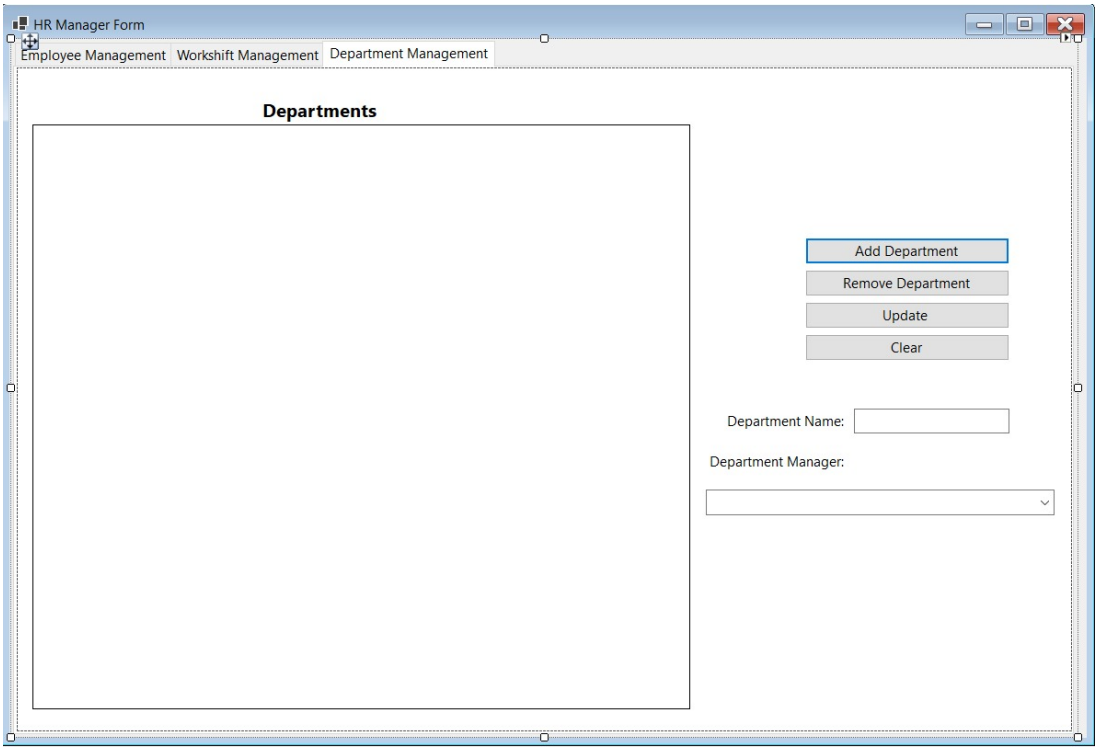
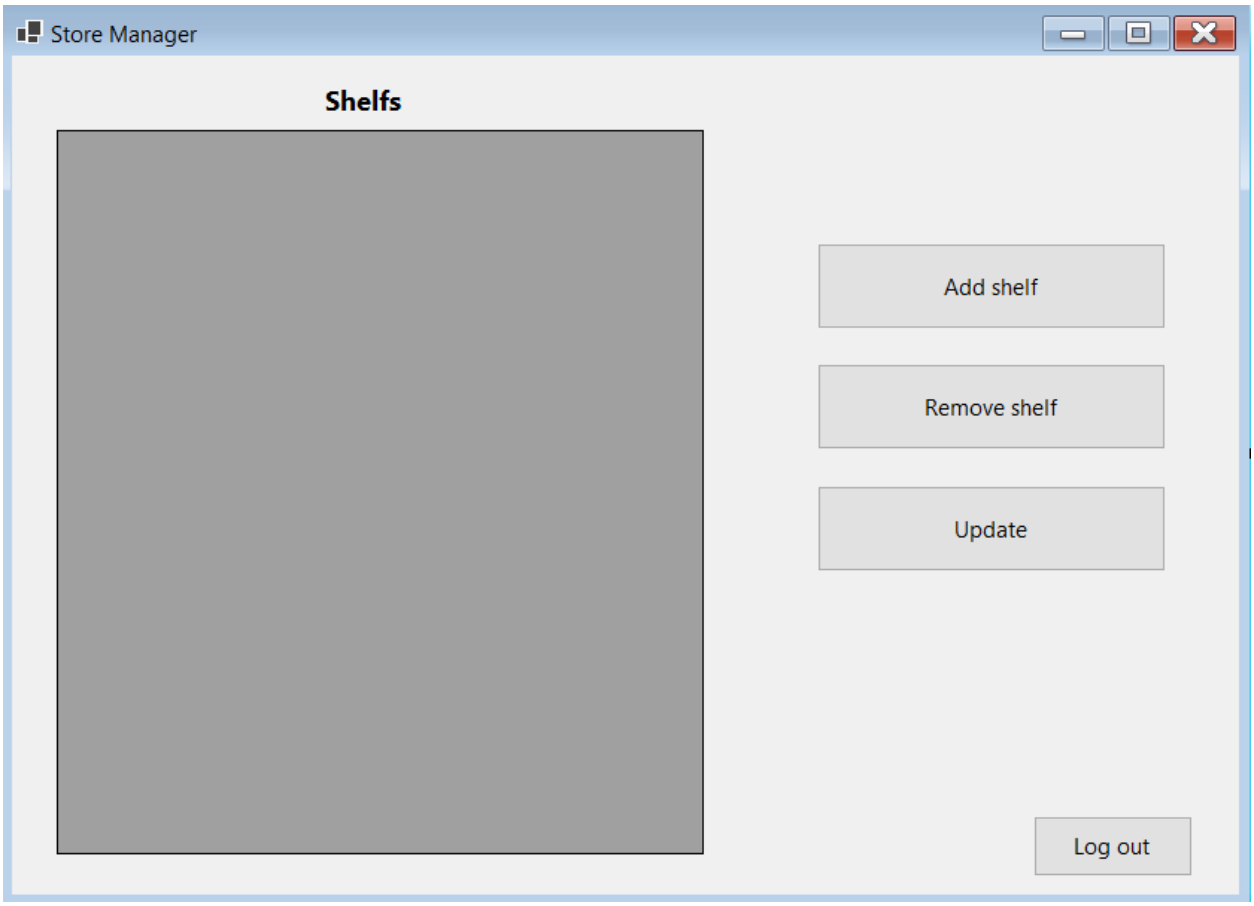


Here the user can Read/View the product information. To open this window the user must select a product from the data grid and click the "View" button.



This is the department manager tab where the admin can Create, Read, Update, Delete (CRUD) departments.



The Store Manager is the User that can manage the shelfs for the products in the system.

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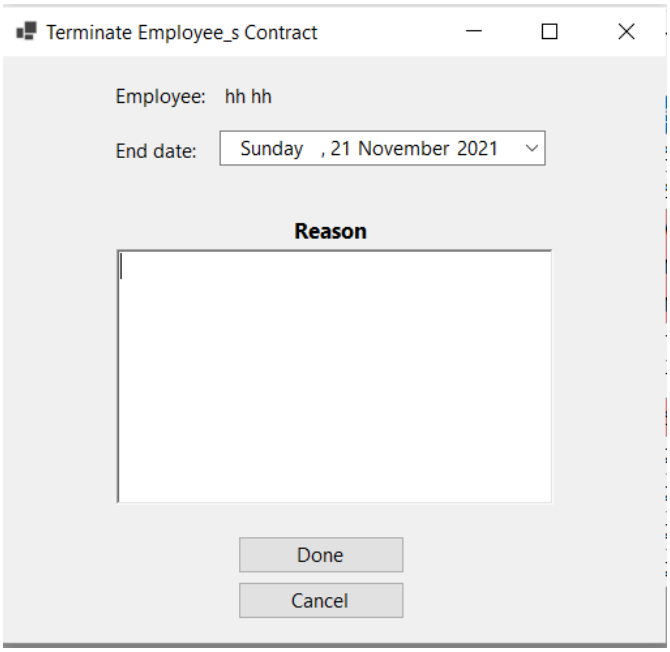

User logged in as HR Manager can terminate employee's contract. After performing that operation, the employee is shown in the list in red.

	ID	First name	Last name	BSN	Email	Start date	End date	Birthdate
▶	21	hh	hh	1234567	rr	Tuesday, Octob...	Sunday, Octobe...	Tuesday, Februa...
	22	Rawan	Alhabsi	12345678	r.alhabsi@gmai...	Tuesday, Octob...	Saturday, Dece...	Tuesday, Februa...
	24	hristo	hristo	33333333	hhggfh	Sunday, Octobe...	Saturday, Octob...	Tuesday, Februa...
	25	test	test	1234567	gg	Tuesday, Octob...	Wednesday, 24 ...	Tuesday, Februa...
	26	stefan	gg	123455667	hj	Tuesday, Octob...	Monday, 18 Oct...	Tuesday, Februa...
	28	Dan	ff	12345678	gjg	Wednesday, Oct...	Monday, 11 Oct...	Tuesday, June 2...
	29	test2	test2	123456789	rwnalhabsi98@...	Wednesday, No...	Tuesday, Nove...	Sunday, Septem...
	30	test3	test3	123456789	rawanalhabsi20...	Wednesday, No...	Tuesday, Nove...	Monday, Dece...
	33	rr	rr	987654321	rwnalhabsi98@...	Friday, Novemb...	Sunday, 21 Nov...	Monday, Januar...
	34	Hristo	Tanchev	23213123	lco123bg@gma...	01 September 2...	23 December 2...	31 December 2...
	35	Peter	Sumers	484668445	fdf@dsad.nl	27 January 2021	21 November 2...	28 December 1...
	36	Surken	Murski	68693564	asd@asd.asd	31 December 2...	21 November 2...	19 November 1...
	37	Christof	Sarfow	157515	email@email.nl	03 November 2...	21 November 2...	02 February 2000