جامعة بيرزيت
BIRZEIT UNIVERSITY

Engineering and Information Technology Faculty
Computer Science Department

Comp2311 Project - II:

Deadline:Wednesday 8/1/2025 before midnight.

الوقت كافي جداً، استغل الوقت من الآن، لن يكون هناك
أي تمديد للمشروع قطعياً

Objectives:

(**ALL MATERIAL COVERED IN THIS COURSE ONLY**)

Note: YOU CAN'T USE ANY OTHER CONCEPT OUTSIDE THESE CHAPTERS (WILL NEVER BE GRADED).

Specification Submission:

1. *Online through ITC.*
2. *What to submit: Your own well-structured and **well-commented** JAVA files (.java)*

Academic Integrity

Please make sure you read the academic integrity section of the syllabus, so you understand what is permissible in our programming projects. We want to remind you that we check your project against other students' projects and any case of academic dishonesty will be referred to **fail in the course and the student is referred to a system committee.**

تنبيه

"انت مسؤول عن كل حرف تم كتابته في المشروع، فإذا قمت بالاستعانة بأي
مصدر خارجي مهما كان هذا المصدر او قدمت المعونة لأي شخص آخر مهما كانت
المعونة صغيرة، فإنه يترتب عليك تحمل كامل المسؤولية من العقوبات الأكاديمية
والتي أقلها الرسوب بالمساق (الحصول على علامة ٥٠) وكذلك التحويل الى لجنة
النظام وإيقاع عقوبة مغلّظة من قبل اللجنة قد تصل الى حد الفصل من الجامعة"
ان استخدامك لمواقع الذكاء الاصطناعي هو مخالف لتعاليم الامانة الاكاديمية

Guidelines:

1) In building your GUI using JavaFX only, you must divide your work into subclasses (DO NOT INCLUDE java JFX CODE INSIDE THE START METHOD as one block). If this point isn't achieved, the project will be corrected from 50%.
2) YOUR project should contain a class that implements the EventHandler interface and overrides the handle method to handle the action events from different controllers.
3) You are autonomous in creating your design for this project.
4) Your project should contain an image for the main stage, use different style sheets, buttons, radio buttons, combo box, icons, tabs, menus with key accelerators, text fields, labels, TableView, and scenes.
5) Your main window should be in maximize status.
6) Your project should contain different layouts (BorderPane, HBox, VBox, GridPane, etc.).
7) Your project should read the data from a text file. You are autonomous to use the proper format.
8) Your project should handle ALL exceptions by displaying an alert message. Hint: Use Google to understand the alert code in JavaFX.
9) Use Java-FX Calendar to enter the date of birth of the employee. Hint: Use Google to understand the code of Calendar in JavaFX.
10) Menus should contain the main operation for main page: (read file, save file, view and add), and etc for other menus (statistics and close). Close tab has exit button which will close the application.
11) Display Pop-up alerts for all operations in this project.
12) All buttons in this project should be reprsented as icons (for example use this icon 💾 instead of saving).

Construct the following classes with their attributes and behaviors as the following description (15% for classes):

1. ***Employee***
   - ➔ Attributes: a unique *Empno (String),* First Name (**String**), Last Name (**String**), Date of Birth (**String**), Address (**object** of **address**). Phone Number (**String**), email (**String**), Nationality(**String**), Designation (**String**), Education (**String**),Employee photo (**image**).
   - ➔ Methods: ***setter and getters for all attributes, toString ().*** Test all attributes with methods described underneath (*parts form a to f*) to ensure that all attributes have correct inputs from the user. Otherwise, the method should catch the error messages and handle them as custom exception.

   a. Names: Should accept names as characters only.
   b. Empno is auto incremental.
   c. Date Birth: Employees birth dates should not be allowable for those under 16 years old.
   d. The address should be valid (check the address class underneath).
   e. Phone No: should contain only numbers and must start with only (059 or 056) and the length is 9 digits.
   f. Emails: The username must start with a character. It should contain only alphabetic (letters A-Z or a-z) followed by numbers (Special characters like white space, $,%,#,..etc., are not allowed). Then, follow with '@' and the server's name and domain.
   Sample: ahamd12@gmail.com is valid, but 1ahamd@gmail.com, or ahamd!@gmail.com is not valid.

   - ➔ Payment method: abstract method.
   - ➔ toString () should return all instances' values.
   - ➔ One Constructor for all attributes and another one without argument.

2. ***Address:*** *Attributes: Country (String), City (String), and Street (String)*

   Methods:
   - ➔ Setters and getters, and toString ().
   - ➔ One Constructor for all attributes and another one without argument.
   - ➔ Methods to test if all strings are valid (special characters are not allowed), and an empty string is not allowed.

3. HourlyEmployee:

- ➔ *Attributes: hours (**short**), rate (**float**).*

Methods:

- ➔ Setters and getters, and toString ().
- ➔ Only one Constructor for all attributes.
- ➔ Methods to test if the rate is valid (more than 288 hours per month and less than 1 are not allowed), and a rate of more than 6 JD and less than 2.5 is not allowed.
- ➔ Payment (): return the monthly salary (rate* hours). If the number of hours is more than 140 hours, then the employee will get 70% as extra for every hour.

4. Salaried Employee

- ➔ *Attributes: annual salary(double)*

Methods:

- ➔ Setters and getters, and toString ().
- ➔ One Constructor for all attributes and another one without argument.
- ➔ Methods to test if *annual salary* is valid (more than 25,000 JD per year and less than 4075 JD are not allowed*).*
- ➔ Payment (): return the monthly salary (*annual salary/12*).

5. CommessionEmployee

- ➔ *Attributes: sold items per month (in JD).*

Methods:

- ➔ Setters and getters, and toString ().
- ➔ One Constructor for all attributes and another one without argument.
- ➔ Payment (): return the monthly salary (*if the income from sold items is between 2800 JD and 3775 JD, then the percentage is 3%, more than 3775 then the percentage is 5%, and less than that is 1.5%). Be aware of negative values.*

6. EmployeeBasedComession

In *addition to the commission from paid items. The employee-based salary has a basic salary.*

- ➔ *Attributes: based on salary*

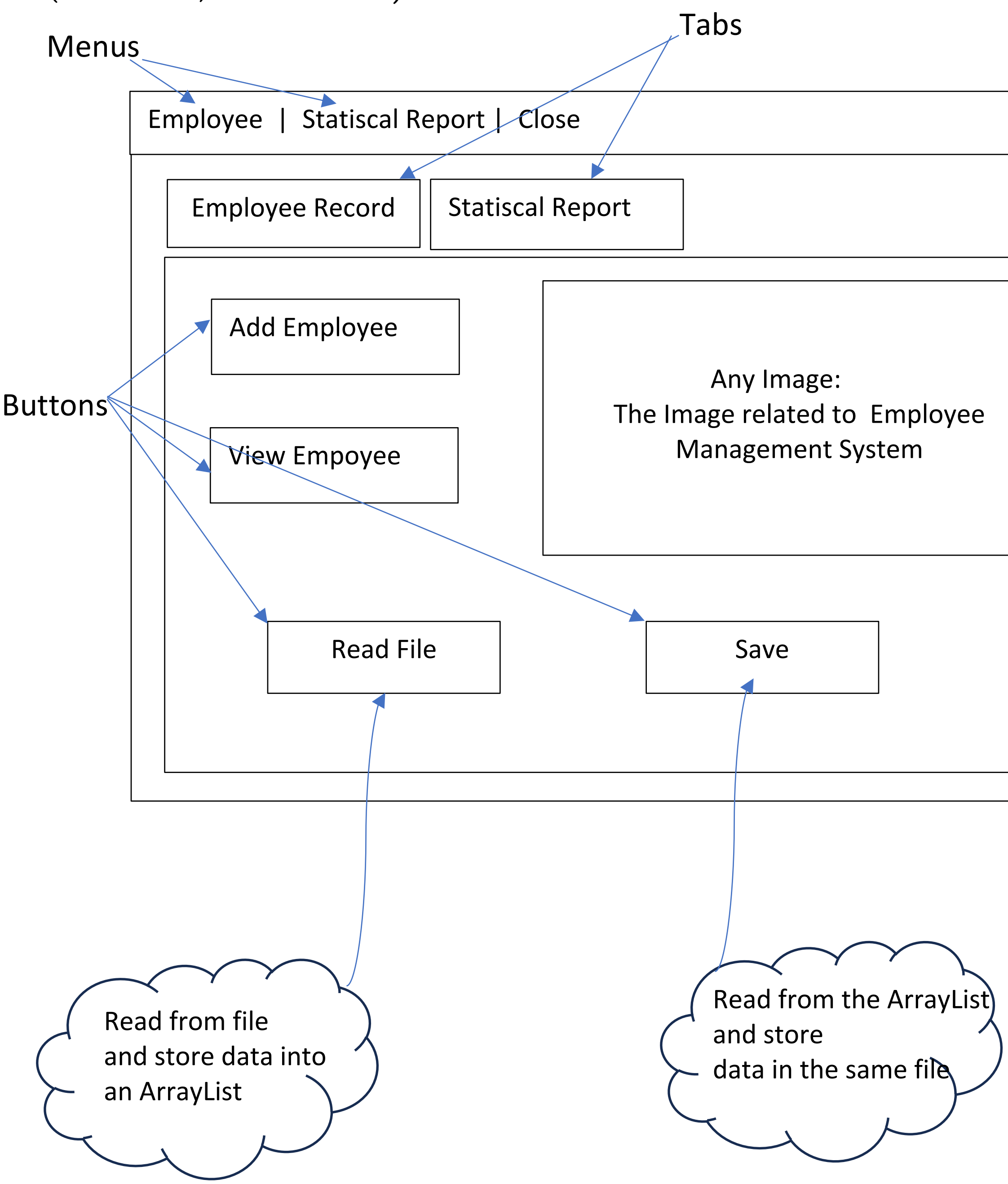
Methods:

- ➔ Setters and getters, and toString ().
- ➔ One Constructor for all attributes and another one without argument.

- Payment (): return the monthly salary (*based on salary + commission). Be aware of negative values.*

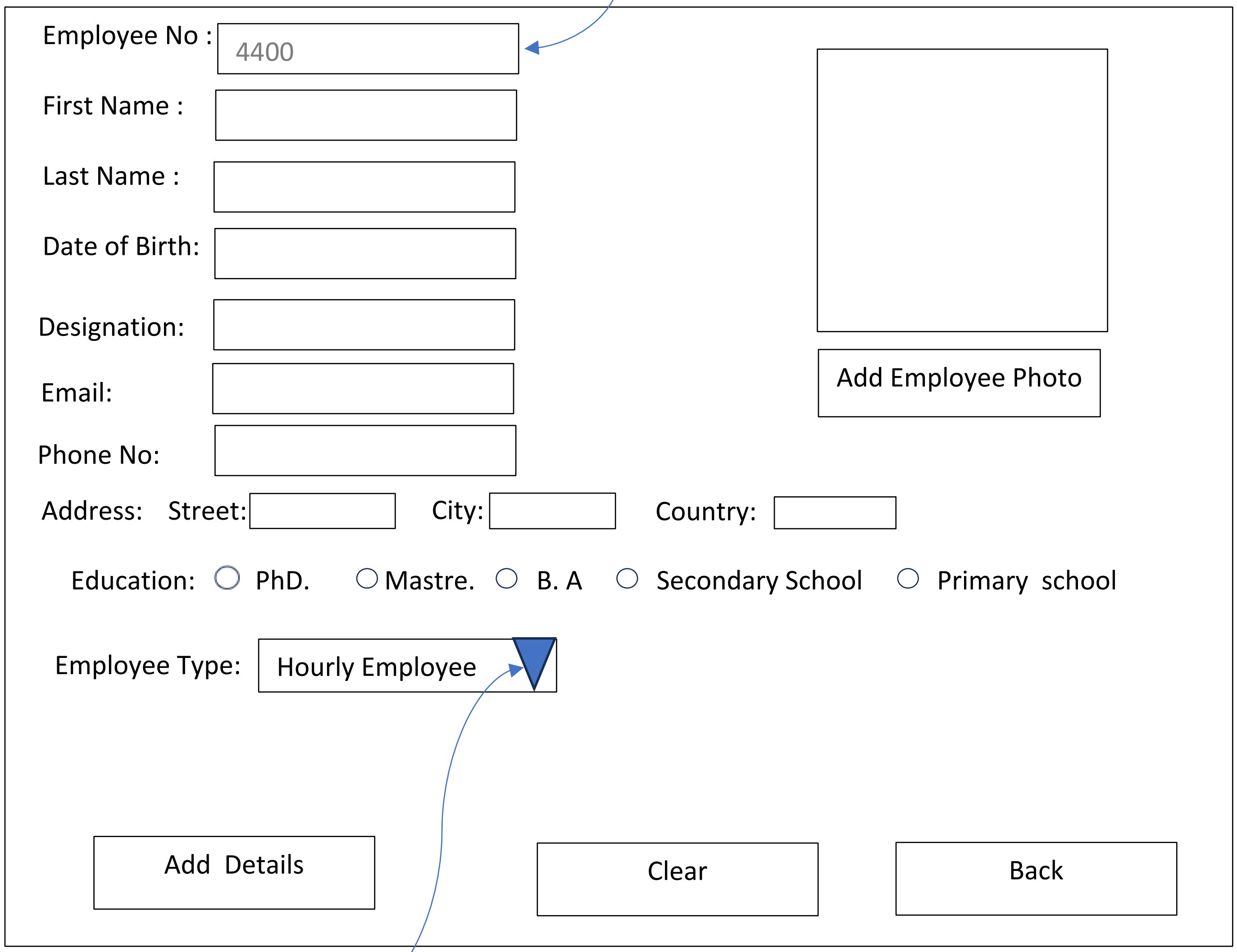
<u>GUI (JavaFX Only/Scene builder is not allowed)</u>: (85%)

(Tabs 75%, 10% Menus)


Menus
Tabs
Employee | Statiscal Report | Close
Employee Record
Statiscal Report
Add Employee
View Empoyee
Any Image:
The Image related to Employee Management System
Buttons
Read File
Save
Read from file and store data into an ArrayList
Read from the ArrayList and store data in the same file

Employee Record Tab(50%)

Add Employee (New Window) :



Employee No : 4400

First Name :

Last Name :

Date of Birth:

Designation:

Email:

Phone No:

Address: Street: City: Country:

Education: ○ PhD. ○ Mastre. ○ B. A ○ Secondary School ○ Primary school

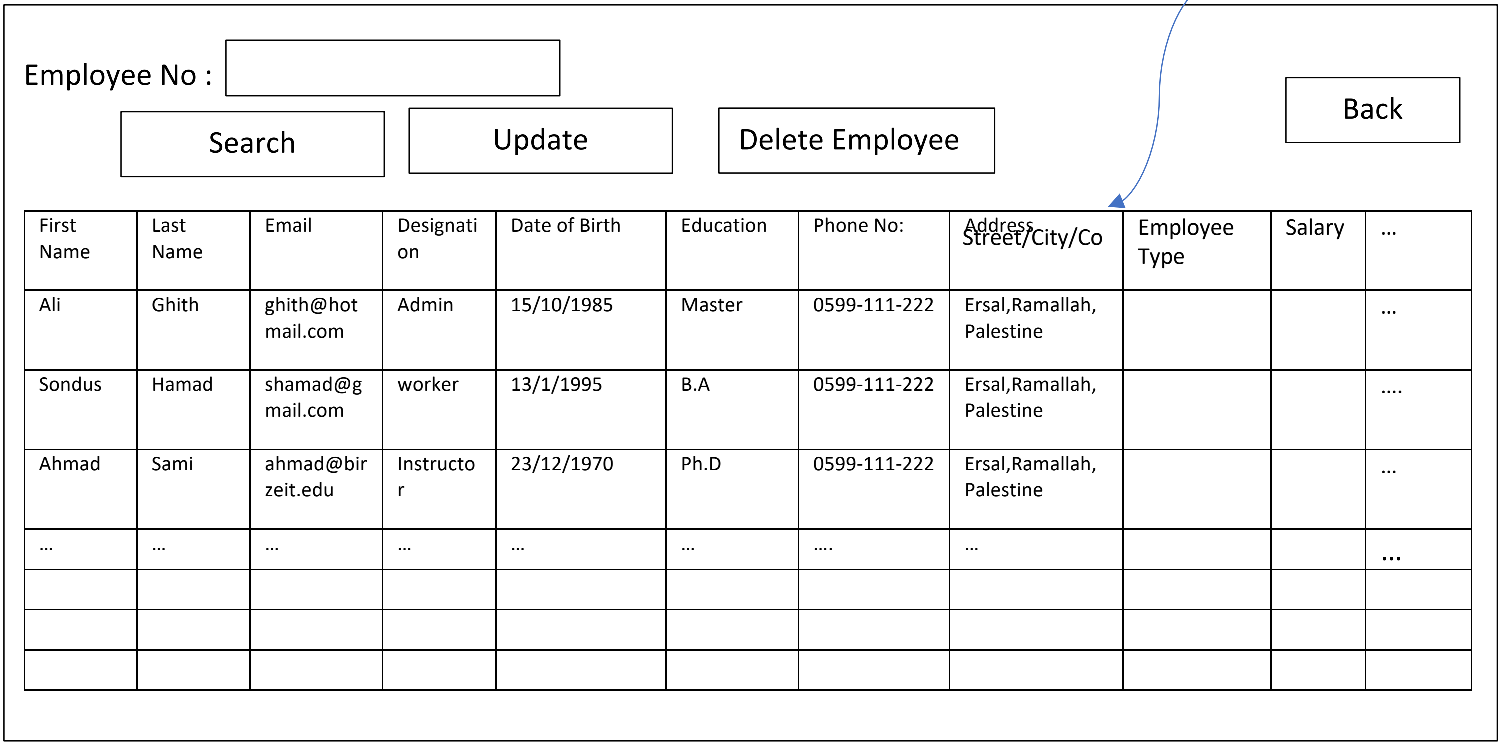
Employee Type: Hourly Employee ▼

Auto generated

ComboBox:
List all employee types

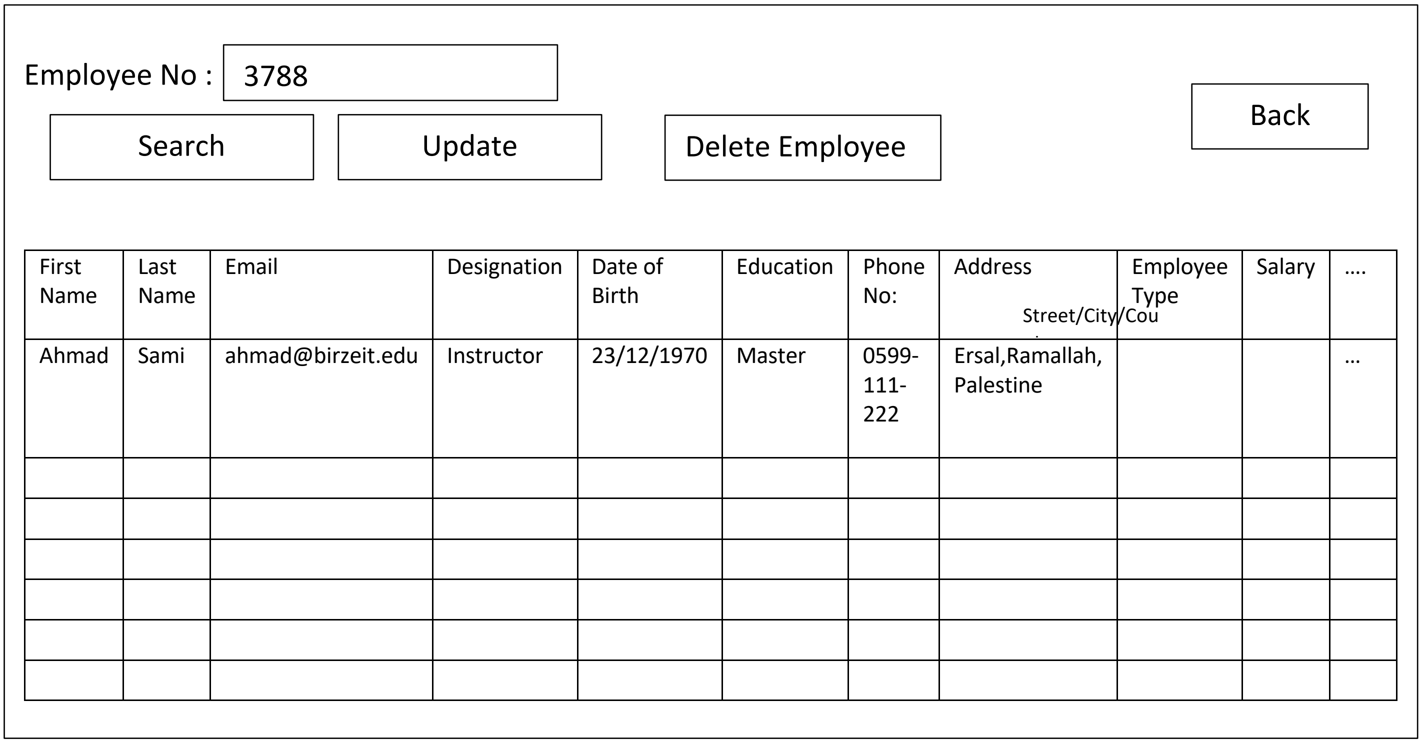
TableVeiw

View Employee (New Window) : View all employee in tableview



First Name	Last Name	Email	Designation	Date of Birth	Education	Phone No:	Address Street/City/Co	Employee Type	Salary	…
Ali	Ghith	ghith@hotmail.com	Admin	15/10/1985	Master	0599-111-222	Ersal,Ramallah, Palestine			…
Sondus	Hamad	shamad@gmail.com	worker	13/1/1995	B.A	0599-111-222	Ersal,Ramallah, Palestine			….
Ahmad	Sami	ahmad@birzeit.edu	Instructor	23/12/1970	Ph.D	0599-111-222	Ersal,Ramallah, Palestine			…
…	…	…	…	…	…	….	…			…

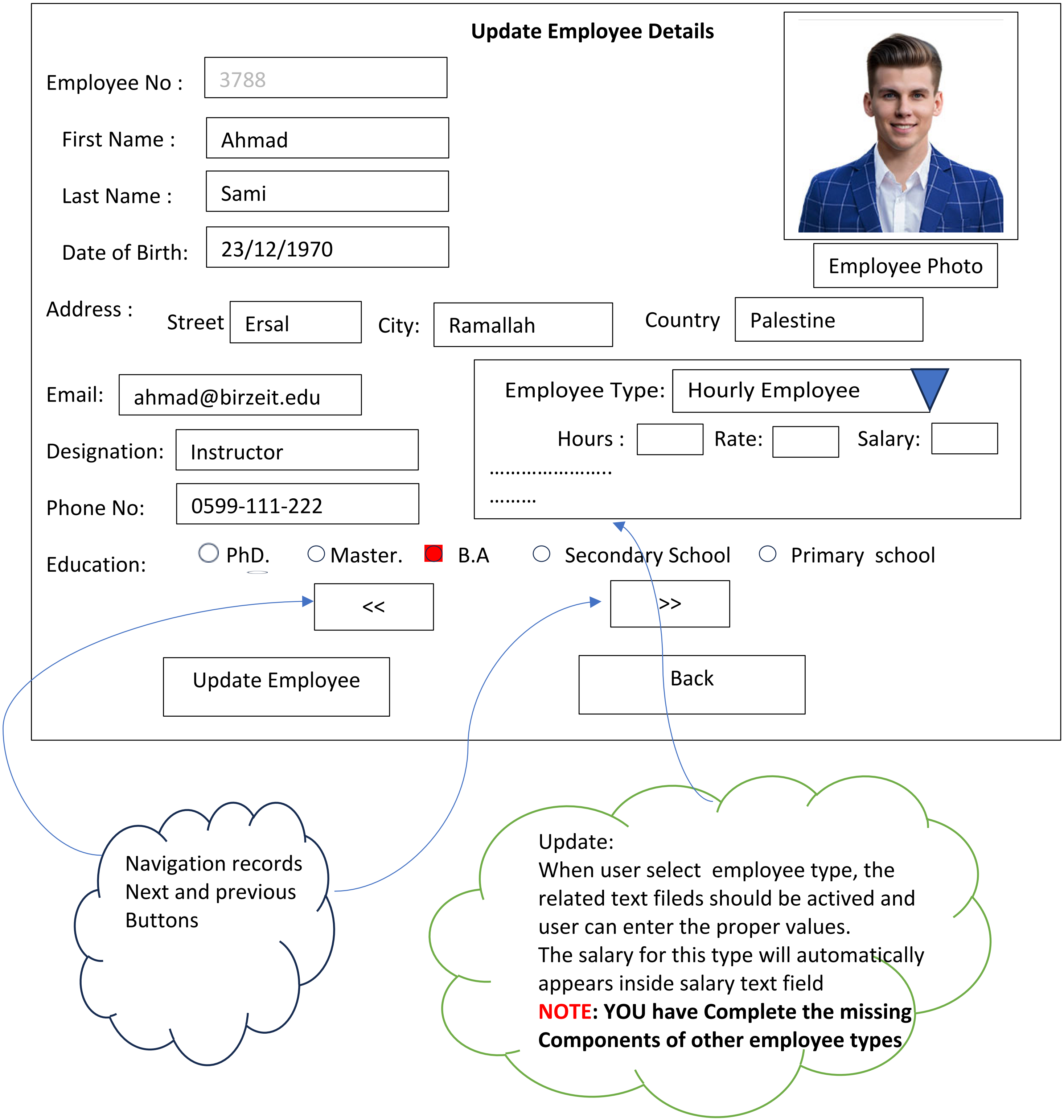
Search Employee (New Window) : After user enter 3788 and press on search button, results appear like underneath figure.



Employee No : 3788

First Name	Last Name	Email	Designation	Date of Birth	Education	Phone No:	Address Street/City/Cou	Employee Type	Salary	….
Ahmad	Sami	ahmad@birzeit.edu	Instructor	23/12/1970	Master	0599-111-222	Ersal,Ramallah, Palestine			…

Update Employee (New Window) : When Click on the update button (from view window), results appear like underneath figure.



Update Employee Details

Employee No : 3788

First Name : Ahmad

Last Name : Sami

Date of Birth: 23/12/1970

Address : Street Ersal City: Ramallah Country Palestine

Email: ahmad@birzeit.edu

Designation: Instructor

Phone No: 0599-111-222

Employee Type: Hourly Employee

Hours : Rate: Salary:

……………………..

………

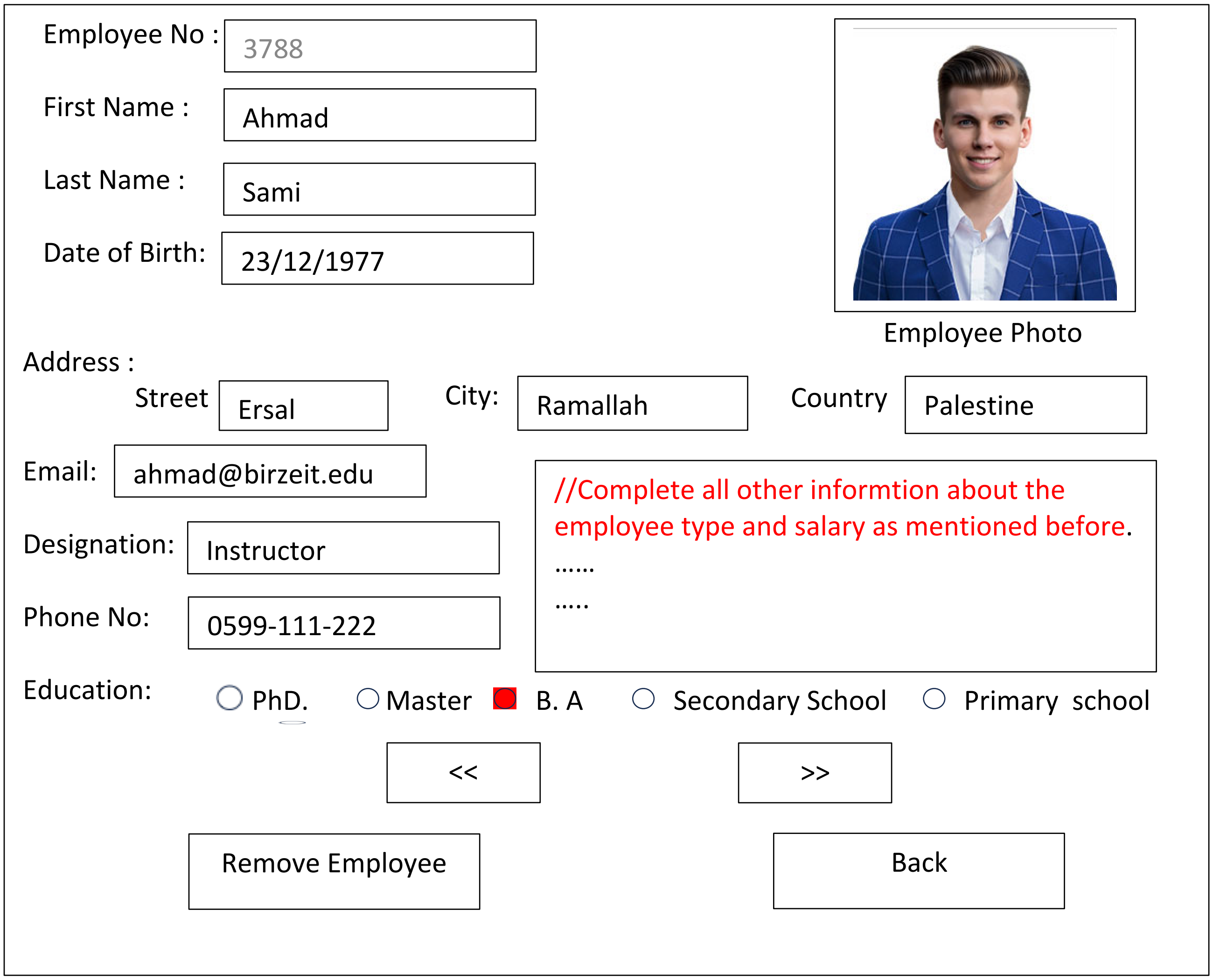
Education: ○ PhD. ○ Master. ● B.A ○ Secondary School ○ Primary school

Navigation records Next and previous Buttons

Update:
When user select employee type, the related text fileds should be actived and user can enter the proper values.
The salary for this type will automatically appears inside salary text field
NOTE: YOU have Complete the missing Components of other employee types

The text fields in gray color can't be updated, but others can be. An alert should appear before update is done.

Remove Employee (New Window) : When Click on the delete button (from view window). The record of this employee will appear in underneath form.



Employee No :	3788
First Name :	Ahmad
Last Name :	Sami
Date of Birth:	23/12/1977

Employee Photo

Address :

Street	Ersal	City:	Ramallah	Country	Palestine

Email:	ahmad@birzeit.edu
Designation:	Instructor
Phone No:	0599-111-222

//Complete all other informtion about the employee type and salary as mentioned before.
……
…..

Education: ○ PhD. ○ Master ● B. A ○ Secondary School ○ Primary school

→ You should know which controllers should be active or editable and which should not be.

→The navigation (next/prev) buttons are used to move forward and backward .

→When the user clicks on the remove employee button, an alert dispalyed to make sure that user need to remove this employee. The employee will be removed from the array list after the OK button is pressed.

Statiscal Report Tab (25%)

This tab contains the following statistics.

1) Print (with info) an employee who has the maximum salary from each employee type. (Show in table view)
2) Print the total payment that the company should pay for all employees.
3) Print all employee names sorted by (First name, last name, education, **or** salary) in descending order. (The result should appear sorted inside the table view, i.e., don’t use the sort features for the table view.).