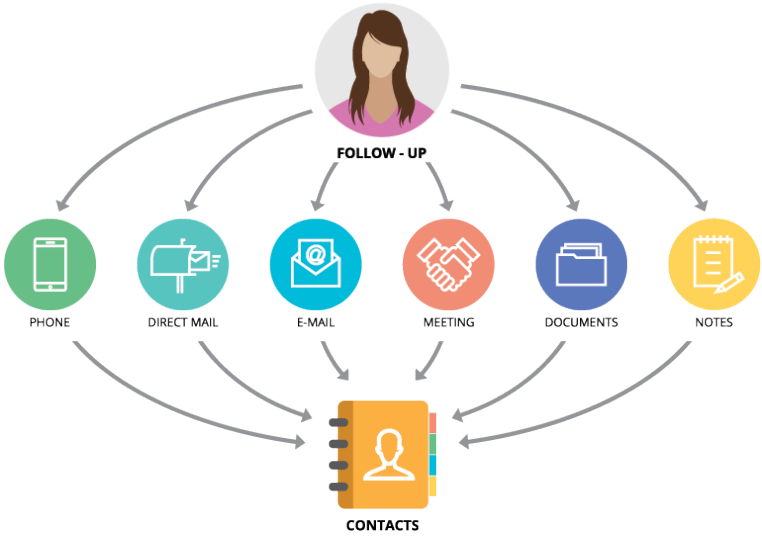
ITCS 200 – Fundamental Programming



Project ICT-CMS

A Contact Management System for ICT students

Group work: max 5 students for each group

Released: Monday 23 October 2017

Due: Sunday 26 November, 2017 11:55 PM, via MyCourse

- You can submit multiple times before the deadline. Your last submission will be marked.
- No late submission is allowed. You will get ZERO score if you submit late.
- Only the group's leader has to do the submission.
- Zip all your files and name it as ID_ID_ID_ID_ID.zip e.g. 6088001_6088002_6088003_6088004_6088005.zip

Demonstration: TBA (approx.. 20 minutes per group)

Learning Objectives:

On the course of implementing this programming project, you will learn the basic concepts of C programming language and how to apply them to practical, real-world programming applications. Specifically, upon accomplishing this project, we expect you to be able to:

1. Declare variable and use them.
2. Learn how to apply a condition statement in real-world problem.
3. Learn how to use Array to manipulate variables.
4. Translate business rules and ideas into code.
5. Get a glimpse of how to write C programming to solve real-world problems.
6. Enjoy coding with C language.

Introduction:

ICT Contact Management System (ICT-CMS) is a tool to manage contacts information of ICT students like a basic phonebook. A user can add new contacts, list contacts, search contact, edit contact, and delete contact as a standard feature. At ICT, administrators have a role to manage the contact information while students use the ICT-CMS to search for contact information and can only edit their own information.

In this project, your task is to implement the ICT-CMS for ***Administrator*** to manage contact and for ***Students*** to use the system.

ICT-LMS Requirements:

There are two types of users in this system: (1) Administrators and (2) Students. The ICT-CMS system must ask users at the beginning which role the user is.

The system consisted of 8 functionalities as follow:

- Main Menu — 1 mark
- User Registration — 1 mark
- Login — 2 marks
- Logout — 2 marks
- Manage Contact Info — 3 marks
  (Include Deleting Contact info by administrator)
- List All Contact Info — 2 marks
- Partial Search for First Name — 2 marks
- Extra Features — 2 marks
  (You must add one useful function that you think it will improve capability of the ICT-CMS)

The score will be given based on the test cases. The students have to demonstrate their projects in the selected demonstration time-slots.

The description of each function is explained in the following section. Please carefully read and implement each function accordingly.

Instruction:

Function 1: Main Menu

The main menu will appear immediately after starting the program. The user can either register to the system [1] or login [2] before using the system. The screen should be similar as below.

```
==============================
ICT Contact Management Systems
==============================
[1] User Registration
[2] Login
[0] Exit
-----------------------
Enter the choice:
```

Figure1: Example of the main menu before log-in to the system.

Function 2: User Registration

From the main menu, users can enter the character 1 for selecting the registration function. The system will ask for your personal information including id, firstname, lastname, phone number, email, and password. If your account successfully added into our system, the program will printout the message "Congratulation!! (Your firstname) Now you can login to the ICT Contact Management System and start search for ICT faculty staffs and friends' information". Otherwise, the program will printout the corresponding "(alert message)".

```
 [Registration]

Please enter the following information
ID: 6088111
First Name: Jainwit
Last Name: Songjai
Phone Number: 0957747575
Email: jainwit.son@hotmail.com
Password: 12345678
Confirmed Password: 12345678

-- End of the Registration Process --

Congratulation!! Jainwit,
Now you can login to the ICT Contact Management System and start to
search for ICT faculty staffs' and friends' information.
```

Figure2: Example of the registration screen.

```
[Registration]

Please enter the following information
ID: 608811100
[ERROR] You can use only 7 digits for ID
[Re-type] ID:
```

Figure3: Example of the wrong ID as an input.

```
[Registration]

Please enter the following information
ID: 6088111
First Name: Jainwit
Last Name: Songjai
Phone Number: 09577475759
[ERROR] You must use only 10 digit numbers for phone number
[Re-type] Phone Number:
```

Figure4: Example of the wrong phone number as an input.

```
[Registration]

Please enter the following information
ID: 6088111
First Name: Jainwit
Last Name: Songjai
Phone Number: 0957747575
Email: jainwit.songjai
[ERROR] You must contain character @
[Re-type] Email:
```

Figure5: Example of the wrong email format as an input.

```
[Registration]

Please enter the following information
ID: 6088111
First Name: Jainwit
Last Name: Songjai
Phone Number: 0957747575
Email: jainwit.son@hotmail.com
```

```
Password: 12345
[ERROR] You must use at least 8 characters for password
[Re-type] Password:
```

Figure5: Example of the wrong password as an input.

```
[Registration]

Please enter the following information
ID: 6088111
First Name: Jainwit
Last Name: Songjai
Phone Number: 0957747575
Email: jainwit.son@hotmail.com
Password: 12345678
Confirmed Password: 87654321
[ERROR] These passwords don't match
[Re-type] Confirmed Password:
```

Figure6: Example of no match between the password and confirm password

Function 3: Login

From the main menu, users can enter the character '2' for selecting the login function. After the user register to our system, then they can login to our system by using their ID and password as an authentication.

If the authentication failed, the program will printout the message "Wrong ID or password" as shown in the figure 7.

If the authentication is successful as a STUDENT (First two digit numbers of ID begin with any number apart from '00' are considered as a student), the program will printout the message "Now you are logged in as a STUDENT in the system. You can start using the following functions" as shown in figure 8.

If the authentication is successful as a Admin (If the first two digit numbers of ID begin with '00', it is considered as an admin), the program will printout the message "Now you are logged in as a ADMIN in the system. You can start using the following functions" as shown in figure 9.

```
[Login Page]

Please enter your ID: 6088111
Please enter your Password: 123
[ERROR] Wrong ID or Password!!!
[Re-Type] Please enter your ID:
```

Figure 7: Example of the failed authentication.

```
[Login Page]

Please enter your ID: 6088111
Please enter your Password: 12345678

Now you are logged in as a student in the system.
You can start using the following functions.

[1] Edit My Contact Information
[2] Show all Contacts
[3] Search for a Contact
[0] Logout
Please enter the choice:
```

Figure 8: Example of the successful authentication as a STUDENT (First two digit numbers of ID begin with any number apart from '00' are considered as a student).

```
[Login Page]

Please enter your ID: 0077222
Please enter your Password: 12345678

Now you are logged in as an admin in the system.
You can start using the following functions.

[1] Edit User's Contact
[2] Show all Contacts
[3] Search for a Contact
[4] Delete User's Contact
[0] Logout
Please enter the choice:
```

Figure 9: Example of the successful authentication as an ADMIN (If the first two digit numbers of ID begin with '00', it is considered as an admin).

Function 3: Logout

[Login as a STUDENT]
After successful login menu, users can enter the character '1' for selecting the logout function. When the user decides to logout, the program will printout the message "Good bye!!!" as shown in the figure 10.

```
[Logout Page]

Goodbye!!!
```

Figure 10: Example of the logout page.

Function 4: Manage Contact Info

After successful login menu, users can enter the character '1' for editing the contact information. If the user is a student, the interface will show as in the Figure 11. User have to enter the choice of field for editing from [1-5].

```
[Edit My Contact Information]

[STUDENT] ID: 6088111

[1] First Name:
[2] Last Name:
[3] Phone Number:
[4] Email:
[5] Password:
Please enter the choice to edit:
```

Figure 11: Example of user edit contact information.

Figure 12 showing the user choices of character '2' for editing Last Name: the program will ask user to re-input new LastName. If nothing wrong, the system will update the information and show the message "Record successfully updated". This is applied for any editing of choices from [1-5]. However, for changing the password, users need to re-input both Password and Confirmed Password as illustrated in Figure 13.

```
[Edit My Contact Information]

[STUDENT] ID: 6088111

[1] First Name:
[2] Last Name:
[3] Phone Number:
[4] Email:
[5] Password:
Please enter the choice to edit: 2

[Re-Input] Last Name: Samjai
Record successfully updated!!
```

Figure 12: Example of user edit Last Name information.

```
[Edit My Contact Information]

[STUDENT] ID: 6088111

[1] First Name:
```

```
[2] Last Name:
[3] Phone Number:
[4] Email:
[5] Password:
Please enter the choice to edit: 5

[Re-Input] Password: 87654321
[Re-Input] Confirmed Password: 87654321
Record successfully updated!!
```

Figure 13: Example of user edit Password information.

If the user is n admin, the interface will show as in the Figure 14. User have to enter the id for editing. If the input id is correct, the admin can start editing information as shown in Figure 15. If the input is wrong or there is no such an id, the system will print the message "[ERROR] There is no matched id in the system." and ask the admin to re-type the id again.

```
[Edit User's Contact]

[ADMIN] ID: 0088111

Please enter the id for editing:
```

Figure 14: Example of admin edit user's information.

```
[Edit User's Contact]

[ADMIN] ID: 0088111

Please enter the id for editing: 6088111

[STUDENT] ID: 6088111

[1] First Name:
[2] Last Name:
[3] Phone Number:
[4] Email:
[5] Password:
Please enter the choice to edit:
```

Figure 15: Example of admin type the correct user's information for edit contact information. The process after this will be the same as in Figure 12.

```
[Edit User's Contact]
```

```
[ADMIN] ID: 0088111

Please enter the id for editing: 608811100
[ERROR] There is no matched id in the system.
[Re-Type] Please enter the id for editing:
```

Figure 16: Example of admin type the wrong user's information.

Function 5: Show All Contacts Information

After successful login menu, any can enter the character '2' for showing all contact information in the system. The output must show as in Figure 17.

```
[Show all Contacts]

==============================
All Contacts
==============================

ID      FirstName    LastName      Role          Phone  Number        Email
================================================================================
0088111 Peter        Copper        Admin         0953254756      peter@gmail.com
0077111 Sarah        Anderson      Admin         0923204343       sarah@gmail.com
6088111 Jainwit      Songjai       Student       0957747575       jainwit.son@hotmail.com
6088112 Somchai      Jaidee        Student       0859399451       somchai@hotmail.com
6088113 Srisomsri    Deejai        Student       0859235351       somsri@hotmail.com
================================================================================
```

Figure 17: Example of function for showing all contact information.

Function 6: Partial Searching for First Name

After successful login menu, any can enter the character '3' for searching contact information by First Name from all contact information in the system. The output must show as in Figure 18. If there is no such the first name, the system must print message "There is no person name '[What user type] in the system" and ask user to re-input a new name as shown in Figure 18.

```
[Search for a Contacts]

==============================
Contacts Information
==============================

Please input First Name for searching: Som

ID      FirstName    LastName      Role          Phone  Number        Email
```

```
=========================================================================
6088112 Somchai     Jaidee       Student      0859399451      somchai@hotmail.com
6088113 Srisomsri   Deejai       Student      0859235351      somsri@hotmail.com
=========================================================================
```

Figure 18: Example of function for searching contact information.

```
[Search for a Contacts]

==============================
Contacts Information
==============================

Please input First Name for searching: Wasut
[ERROR] There is no person Name 'Wasut' in the system.
[Re-Type] Please input First Name for searching:
```

Figure 19: Example of function for searching contact information when there is no such a contact information.

Function 7: Delete user from user ID

If you are login as an admin role, you can also delete user from the system. After successful login menu, any can enter the character '4' for selecting contact to delete from in the system. The system will ask you to key user's id that you want to delete as show in Figure 19. If the user type 'y' or 'Y', the system will remove the user's contact information and display the message "Record Successfully Deleted!!" as shown in Figure 20. If the user type 'n' or 'N', the system will ask admin to re-enter the other id to delete as shown in Figure 21.

```
[Delete User's Contact]

[ADMIN] ID: 0088111

Please enter the id for deleting: 6088111

[STUDENT]
ID: 6088111
First Name: Jainwit
Last Name: Songjai
Phone Number: 0957747575
Email: jainwit.son@hotmail.com
```

```
Do you want to delete this contact information(Y/N)?
```

Figure 19: Example of function for deleting user information.

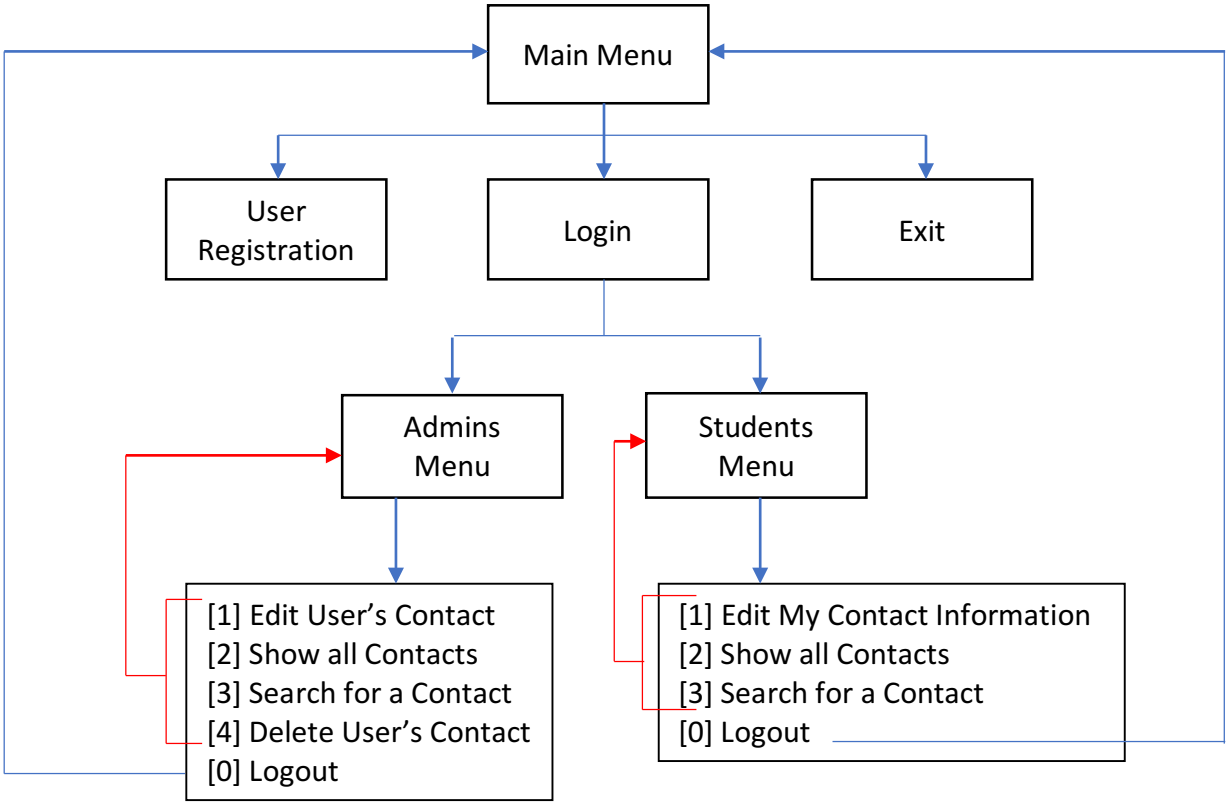
```
Do you want to delete this contact information(Y/N)? Y
Record Sucessfully Deleted!!!
```

Figure 20: Example of typing 'y' to delete contact information.

```
Do you want to delete this contact information(Y/N)? N
Please enter the id for deleting:
```

Figure 21: Example of typing 'n' to cancel the delete command.

Application Diagram



Academic Integrity

Please do your own work. Your survival in the subsequent courses heavily depends on the programming skills that you harvest in this course. Though students are allowed and encouraged to discuss ideas with others, the actual solutions must be written by themselves without ***being dictated or looking at others' code***. Collaboration in writing solutions is not allowed, as it would be unfair to other students. It is better to submit a broken program that is a result of your own effort than taking somebody else's work for your own credit! Students who know how to obtain the solutions are encouraged to help others by guiding them and teaching them the core material needed to complete the project, rather than giving away the solutions. ***You can't keep helping your friends forever, so you would do them a favor by allowing them to be better problem solvers and life-long learners.* ** If you get caught cheating, serious actions will be taken!