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| |  |  |  | | --- | --- | --- | | **C:\Users\sonnx0907\Desktop\Untitled.png** | **MINISTRY OF EDUCATION AND RAINING** | | | **FPT UNIVERSITY** | | |
| Capstone Project Document |
| Hospital Finder |
| |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | **Group 11** | | | **Group Members** | Lê Phước Việt – Team Leader – SE60706  Nguyễn Xuân Sơn – Team Member – SE60727  Dương Thị Hoàng Anh – Team Member – 60434 | | **Supervisor** | Nguyễn Đức Khoan | | **Ext Supervisor** | N/A | | **Capstone Project code** | HospitalF | | |

- Ho Chi Minh City, May / 2014 –

**CAPSTONE PROJECT REGISTER**

Class: Duration time: from 12/05/201 To 03/09/2014

(\*) Profession: <Software Engineer> Specialty: <ES> <IS>

x

(\*) Kinds of person make registers: Lecturer Students

X

1. Register information for supervisor (if have)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Full name** | **Phone** | **E-Mail** | **Title** |
| Supervisor 1 | Nguyễn Đức Khoan |  | khoannd@fpt.edu.vn | Mr. |

2. Register information for students (if have)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Full name** | **Student code** | **Phone** | **E-mail** | **Role in Group** |
| Student 1 | Lê Phước Việt | SE60706 | 0949051851 | vietlpse60706@fpt.edu.vn | Team leader |
| Student 2 | Nguyễn Xuân Sơn | SE60727 | 01214184300 | sonnxse60727@fpt.edu.vn | Team member |
| Student 3 | Dương Thị Hoàng Anh | 60434 | 0908616730 | anhdth60434@fpt.edu.vn | Team member |

3. Register content of Capstone Project

(\*) 3.1. Capstone Project name:

English: Hospital Finder.

Vietnamese: Tìm kiếm bệnh viện

Abbreviation:

- HospitalF

- Building the web application which compatible with both computer and mobile devices supports user to find the appropriate hospitals for their conditions. The system can find the appropriate hospitals and shows the result list and on map. In this map, user can interact with the system to see hospital image, name, address, short description, and the rating. The system can show full description, more images and users’ reviews. User also can write a review, rating and share information of the hospital if they have a social account.

(\*) 3.2. Main proposal content (including result and product)

1. Theory and practice (document):

* Student should apply the software development process and the UML
* Software artifacts include User Requirement, Software Requirement Specification, Architecture Design, Detail Design, System Implementation and Testing Document, Installation Guide, sources code, and deployable software packages
* 3 tiers should be applied
* Server side technique:
  + Database design, OOA, OOD, OOP, MVC, Java, PHP or .Net technology, …
* Client side technique
  + HTML5, CSS, JavaScript, JQuery, Ajax, Android, …
* Communication technique
  + Exchange information and transfer data in effective in networks
* Research
  + Google Map API, Social Network Integration, …

1. Program:

* Main functions
  + Admin
    - Manage the systems, manage account, configure systems …
  + Staff
    - Update and create the new users, update hospital information ...
    - Make the statistic
  + Users
    - Make query/request, login using social account, rating, write the reviews

1. Other products:

N/A

4. Other comment (propose all relative thing if have)

N/A

|  |  |
| --- | --- |
| **Supervisor**  *(Sign and full name)* | HCM city, date 12/05/2014  **On behalf of Registers**  *(Sign and full name)* |

|  |
| --- |
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# **Table of Acronyms and Abbreviations**

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| **No.** | **Acronyms / Abbreviations** | **Definition** |
| 1 | HospitalF | Hospital Finder |
| 2 | Admin | Administrator |
| 3 | HU | Hospital User |
| 4 | NU | Normal User |
| 5 | ERD | Entity relationship diagram |
| 6 | PMP | Project management plan |
| 7 | SRS | System requirements specification |
| 8 | SDD | Software design description |
| 9 | SIT | System implementation and test |
| 10 | UML | Unified model language |
| 11 | GIR | Geographic information retrieval |

1. **Introduction**
2. **Project information**

* Project name: Hospital Finder
* Project code: HospitalF
* Product type: Responsive design website
* Start date: May 12, 2014
* End date: September 03, 2014

1. **Introduction**

* The needs of health services for people is raising every day. A list of hospitals or clinics center in a specific region is not so difficult to find, but finding suitable health services for a specific illness or disease is a headache problem. A nearer and faster curing service, a better chance for a patient to improve his/her condition. The more health services people required, the more specific information people want to know about their chosen centers. Understanding that needs, we offer a brand new website system for hospital service in Vietnam, named Hospital Finder.

1. **Current Problem**

* A system for finding appropriate health services base on patients’ conditions is not yet published.
* Vietnam doesn’t have an official published list of hospitals and clinics that offer health services in the country, and many non-official websites provide different versions of the list so the information is not consistent.
* A better list is supported by Google Map by using “Hospital” or “Health” keywords, but some locations and names are not relevant to health services because of attached advertising tag keywords.

1. **Proposed solution**

* Hospital Finder is a website application that’s built for finding appropriate hospitals with users’ conditions.
* The result will be displayed on a visual map, users can interact with it to show full description, images and another users’ reviews about any health centers. Users can also write comments, create rating or feedback to administrators if they see the provided information is not suitable or incorrect.
* Appointment online is supported as an intermediate service between the system and new hospitals or private clinics that doesn’t have online management service.
* The system is compatible with both computers and mobile devices.

1. **Functional Requirement**
2. **Search Hospital**

* Users can search for hospitals or clinics by using those features below:
* Patients’ conditions.
* Centers in a specific area in Vietnam.
* Centers around current location or at a specific location address.
* Centers that located at a specific distance reference to the current location of user.
* Search results and the shortest way to a specific center will be displayed on an interactive visual map.

1. **Hospital Management**

\_ Administrators can import hospitals to the system using a pre-defined Excel template or create them manually.

\_ Hospital members can manage, add or update the information of their hospitals.

1. **User Management**

\_ Administrators have the right to create new hospital members. Keep track of current using members and have the right to active or de-active their accounts.

1. **Meta data management**

* Administrators have the right to manage data of specialities, diseases, supporting services or facilities of the system.
* Those data will be used as basement data for the whole system.

1. **Statistics**

\_ System supports generating statistics about those features below:

+ Top 10 hospitals that have the highest appointment in a given time span.

+ Search query that provides the highest counting result.

1. **Online Appointment**

\_ Allow users to make appointment online, they can choose what time they want to book, or specific doctor they want to be in charged, and another additional requirements.

1. **Synchronizing Google Calendar**

\_ Appointments will be synchronized through Google Calendar for easier tracking and managing.

1. **Mobile Devices**

\_ Hospital Finder system is compatible with both computers and mobile devices.

1. **Role and responsibility**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Full Name** | **Roles** | **Position** | **Contact Detail** |
| 1 | Nguyễn Đức Khoan | Project Manager | Instructor | khoannd@fpt.edu.vn |
| 2 | Lê Phước Việt | Designer, developer, tester | Leader | vietlpse60706@fpt.edu.vn |
| 3 | Nguyễn Xuân Sơn | Designer, developer, tester | Member | sonnxse60727@fpt.edu.vn |
| 4 | Dương Thị Hoàng Anh | Designer, developer, tester | Member | anhdth60434@fpt.edu.vn |

1. **Project Management Plan (PMP)**
2. **Problem Definition**
3. **Name of this Capstone Project**

* Hospital Finder

1. **Problem Abstract**

* The needs of health services for people is raising every day. A list of hospitals or clinics center in a specific region is not so difficult to find, but finding suitable health services for a specific illness or disease is a headache problem. A nearer and faster curing service, a better chance for a patient to improve his/her condition. The more health services people required, the more specific information people want to know about their chosen centers. Understanding that needs, we offer a brand new website system for hospital service in Vietnam, named Hospital Finder.

1. **Project Overview**
2. **The Current System**

* A system for finding appropriate health services base on patients’ conditions is not yet published.
* Vietnam doesn’t have an official published list of hospitals and clinics that offer health services in the country, and many non-official websites provide different versions of the list so the information is not consistent.
* A better list is supported by Google Map by using “Hospital” or “Health” keywords, but some locations and names are not relevant to health services because of attached advertising tag keywords.

1. **The Proposed System**
   * 1. **Computers**

**Guest:**

* Search hospitals and clinics base on:
  + - Patients’ conditions.
    - Centers in a specific area in Vietnam.
    - Centers around current location or at a specific location address.
    - Centers that locate at a specific distance reference to current location.
* They can also view information of a specific hospital or clinic.
* Make appointment online.
* Feedback about information of the system.

**Normal Users:**

* Have all priorities that supported for guests except Login.
* Create ratings and comments on a specific hospital or clinic.

**Hospital users:**

* Manage information about their hospitals or clinics.
* View users’ feedback about their hospitals or clinics.
* Manage doctor of their hospitals or clinics.
* View appointments.
* View statistics.

**Administrators:**

* Create hospital users’ accounts.
* Manage normal and hospital users.
* View users’ feedback about the system.
* Manage and import list of hospitals or clinics.
* View statistics.
  + 1. **Mobile Devices**
* Only support functions for guests.

1. **Boundaries of the System**

* Hospital Finder can be used on both computers and mobile devices.
* Services for Administrators and Hospital users are not supported on mobile version.
* The system is not support using alias name in search query.
* English and another foreign languages are not supported for searching.
* The list of hospitals and clinics in a specific area is not automatically updated.
* The system is only an intermediate service between users and hospitals. It is not provide any service or method to manage business of a hospital or clinic online.

1. **Development Environment**
   * 1. **Hardware requirements**

For servers:

|  |  |  |
| --- | --- | --- |
| **Infrastructure** | **Minimum Requirements** | **Recommended** |
| Operating system | Window XP, 7 or 8 | Window 7 or 8 |
| Processor | Intel® Core 2 Duo | Intel® Core i5-460M |
| Memory | 1 GB RAM | 2GB or higher |
| Internet connection | Cable or wireless connection (512Mb) | Cable or wireless connection (2Mb) |

For mobiles devices:

|  |  |  |
| --- | --- | --- |
| **Infrastructure** | **Minimum Requirements** | **Recommended** |
| Operating system | Android 4.0 | Android 4.4 |
| Memory | 512 GB RAM | 1GB RAM or higher |
| Internet connection | Wireless connection (512Mp) | Wireless connection (2Mb) |

* + 1. **Software requirements**

\_ Operating system: Window 7 Ultimate

\_ Smart phone operating system: Android 4.3

\_ IDE for server and web application: Microsoft Visual studio 2012 Ultimate

\_ Database: Microsoft SQL 2008 Express SP 2

\_ Google code and Tortoise SVN

\_ Browser: Google Chrome Version 34.0.1847.137

1. **Project Organization**
2. **System Process Model**

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For more information, please refer to the website:

http://blogs.globalteckz.com/characteristics-of-agile-methodology-in-software-development/

1. **Roles and Responsibilities**

|  |  |  |
| --- | --- | --- |
| **Full name** | **Roles** | **Responsibilities** |
| Nguyễn Đức Khoan | Project Manager | * Give user requirements * Control developing process * Support |
| Lê Phước Việt | Team Leader | * Manage members and tasks * Designer * Developer * Tester |
| Nguyễn Xuân Sơn | Team Member | * Designer * Developer * Tester |
| Vũ Nhật Anh Khoa | Team Member | * Designer * Developer * Tester |
| Dương Thị Hoàng Anh | Team Member | * Designer * Developer * Tester |

1. **Tools and Techniques**
2. **Back-end**

\_ HTML 5

\_ CSS 3

\_ Javascript

\_ Jquery

\_ Ajax

1. **Front-end**

\_ ASP.NET MVC 4

\_ Linq

\_ Android toolkit

\_ Microsoft IIS 7

\_ Microsoft SQL 2008 Express SP 2

1. **Project Management Plan**
   1. **Overview**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Iteration** | **Description** | **Output** | **Time** | **Note** |
| **1** | * Study technology that will be used in the project. * Identify business and system requirements. | * Business of the Hospital Finder system. | 20 days | * Might have misunderstanding between user and project team. |
| **2** | * Finding suitable searching algorithm. * Prepare meta-data. | * Searching algorithms. * Data of hospitals, specialities, diseases, supporting services and facilities. | 20 days | * Need to combine and optimize search technology and algorithm. * Lack of medical published data. |
| **3** | * Implement search methods. * Implement method to display hospital detail. * Implement methods to manage doctors in a specific hospital or clinic. | * User can search hospitals base on 3 search options: Normal search, advanced search and location search. * View hospital details. * Methods to add, update and display doctors’ information. | 30 days | * Search methods return unexpected results. * Data in results page and hospital detail page might be confused. |
| **4** | * Implement methods to manage hospitals * Implement methods to manage meta-data and users. * Implement methods to manage appointments. * Implement statistics methods. | * Method to add, update hospitals and display a list of them. * Method to manage specialities, diseases, supporting services and facilities. * Method to add, update users. * Method to create and view appointments. * Method to view statistics. | 20 days | * Excel template need to be defined. * Lack of data of specialities, diseases, supporting services and facilities. |

* 1. **Detail**

1. **Iteration 1**

|  |  |  |
| --- | --- | --- |
| **Task** | **Description** | **Resource** |
| **Identify business of the system** | Decide which services will be provided to the users. | VietLP, SonNX, AnhDTH |
| **Report 1** | Create introduction report HospitalF system. | SonNX |
| **Project Management**  **Plan.** | Create plan for the whole project. | VietLP |
| **Website Prototype.** | Design website prototype | VietLP, AnhDTH |
| **Design ERD diagram.** | Design entity relationship diagram. | SonNX |
| **Study Facebook service and Google APIs** | Study how to integrate Facebook and Google service to the project. | AnhDTH |

1. **Iteration 2**

|  |  |  |
| --- | --- | --- |
| **Task** | **Description** | **Resource** |
| **Find search algorithms** | Find and study search algorithms. | VietLP, SonNX, AnhDTH |
| **Geographic information retrieval algorithm** | Study and implement geographic information retrieval algorithm | VietLP, SonNX |
| **Report 2** | Create project management report for HospitalF system. | SonNX |
| **Prepare meta-data** | Find data of hospitals, specialities, diseases, supporting services and facilities. | AnhDTH |
| **Report 3** | Create use case and SRS document. | VietLP, SonNX, AnhDTH |

1. **Iteration 3**

|  |  |  |
| --- | --- | --- |
| **Task** | **Description** | **Resource** |
| **Normal search** | Implement normal search mode. | SonNX |
| **Advanced search** | Implement advanced search mode. | SonNX |
| **Location search** | Implement location search mode. | VietLP |
| **Hospital detail** | Implement hospital detail page. | VietLP |
| **Manage doctor methods** | Implement methods to add, update, and display doctor information. | AnhDTH |
| **Testing** | Test methods to search hospital and manage doctors of a specific hospital or clinic. | VietLP, SonNX, AnhDTH |
| **Report 4** | Create UML diagrams and SDD document. | VietLP, SonNX, AnhDTH |

1. **Iteration 4**

|  |  |  |
| --- | --- | --- |
| **Task** | **Description** | **Resource** |
| **Manage hospital methods** | Implement methods to add, update, and view list of hospitals. | SonNX |
| **Manage appointment methods** | Implement methods to add, and view appointments. | AnhDTH |
| **Manage meta-data** | Implement methods to add, update, view list of specialities, diseases, supporting services and facilities. | SonNX |
| **Manage users** | Implement methods to add, update, and view list of users | VietLP |
| **Feedback** | Implement methods to create, and view list of feedbacks. | AnhDTH |
| **Statistics** | Implement statistics methods. | VietLP |
| **Testing** | Test methods that will be implemented in iteration 4. | VietLP, SonNX, AnhDTH |
| **Report 5** | Create test case and SIT documnt | VietLP, SonNX, AnhDTH |
| **Report 6** | Create user manual report. | SonNX |

1. **Convention Rules**

* Using C# coding convention at page:  
  http://msdn.microsoft.com/en-us/library/vstudio/ff926074.aspx

1. **System Requirements Specification (SRS)**
2. **User Requirement Specification**
   1. **Guest requirement**
   2. **Normal User requirement**
   3. **Hospital User requirement**
   4. **Administrator requirement**
3. **System Requirements Specification**
4. **External Interface Requirements**
5. **User Interfaces**
6. **Software Interfaces**
7. **Communication Protocol**
8. **Function Requirements**
9. **System Overview**
10. **Use case List**
    * + 1. **<GU> Overview Use Case**
        2. **<GU> Login**
        3. **<GU> Search Hospital**
        4. **<GU> View Hospital Information <US>**
        5. **<GU> Search Doctor**
        6. **<GU> Make Appointment Online <US>**
        7. **<GU> Feedback**
        8. **<GU> Create Hospital User’s Account**
        9. **<US> Overview Use Case**
        10. **<US> Search Hospital**
        11. **<US> View Hospital Information <GU>**
        12. **<US> Search Doctor**
        13. **<US> Make Appointment Online**
        14. **<US> Comment**
        15. **<US> Reply Comment**
        16. **<US> Rating Hospital**
        17. **<US> Logout**
        18. **<HU> Overview Use Case**
        19. **<HU> Add New Doctor**
        20. **<HU> Search List of Doctors**
        21. **<HU> Update Doctor Information**
        22. **<HU> Upload Photo**
        23. **<HU> Update Hospital Information**
        24. **<HU> View List of Appointments**
        25. **<HU> View Hospital Statistics**
        26. **<HU> Change Password**
        27. **<HU> Reclaim Forgotten Password**
        28. **<AD> Overview Use Case**
        29. **<AD> View List of Feedbacks**
        30. **<AD> View List of Users**
        31. **<AD> Activate User**
        32. **<AD> De-active User**
        33. **<AD> View System Statistics**
        34. **<AD> Import Hospital Using Excel**
        35. **<AD> Create Hospital**
        36. **<AD> Upload Photo**
        37. **<AD> Search List of Hospitals**
        38. **<AD> Update Hospital Information**
        39. **<AD> Approve Hospital User’s Account**
11. **Non-Functional Requirements**
12. **Reliability**
13. **Availability**
14. **Security**
15. **Maintainability**
16. **Portability**
17. **Performance**
18. **Entity Relationship Diagram**
19. **System Design Description (SDD)**
20. **Design Overview**
21. **System Architecture Design**
22. **Component Diagram**
23. **Detailed Description of Components**
24. **Class Diagram**
25. **Class Diagram Explanation**
26. **User**
27. **Hospital**
28. **HospitalType**
29. **Doctor**
30. **DoctorSpeciality**
31. **DoctorHospital**
32. **Appointment**
33. **Role**
34. **Feedback**
35. **FeedbackType**
36. **Facility**
37. **HospitalFacility**
38. **Service**
39. **HospitalService**
40. **Photo**
41. **Ward**
42. **District**
43. **City**
44. **Speciality**
45. **HospitalSpeciality**
46. **Disease**
47. **SpecialityDisease**
48. **WordDictionary**
49. **WordHospital**
50. **SentenceDictionary**
51. **SentenceWord**
52. **Sequence Diagram**
    1. **Search Hospital**
    2. **Import Hospital Using Excel**
    3. **Create Hospital**
    4. **View Hospital Information**
    5. **Update Hospital Information**
    6. **Create Appointment Online**
    7. **Confirm Appointment**
    8. **Comment**
    9. **View List of Appointments**
    10. **View Statistics**
53. **User Interface Design**
    1. **Login**
    2. **Logout**
    3. **Change Password**
    4. **Reclaim Forgotten Password**
    5. **Search Hospital <GU> <US>**
    6. **Import Hospital Using Excel**
    7. **Create Hospital**
    8. **Create Hospital User’s Account**
    9. **View Hospital Information**
    10. **Search Doctor <GU> <US>**
    11. **Create Appointment Online**
    12. **Cancel Appointment**
    13. **Feedback**
    14. **Comment**
    15. **Reply Comment**
    16. **Rating Hosptial**
    17. **Add New Doctor**
    18. **Search List of Doctor <HU>**
    19. **Search List of Hospital <AD>**
    20. **Update Doctor Information**
    21. **Upload Photo**
    22. **Update Hospital Information**
    23. **View List of Appointments**
    24. **View List of Feedbacks**
    25. **View List of Users**
    26. **Activate Users**
    27. **Deactivate Users**
    28. **View Hospital Statistics**
    29. **View System Statistics**
54. **Database Design**
    1. **Logical Database Design**
    2. **User**
    3. **Hospital**
    4. **HospitalType**
    5. **Doctor**
    6. **Doctor\_Speciality**
    7. **Doctor\_Hospital**
    8. **Appointment**
    9. **Role**
    10. **Rating**
    11. **Feedback**
    12. **FeedbackType**
    13. **Facility**
    14. **Hospital\_Facility**
    15. **Service**
    16. **Hospital\_Service**
    17. **Photo**
    18. **Ward**
    19. **District**
    20. **City**
    21. **Speciality**
    22. **Hospital\_Speciality**
    23. **Disease**
    24. **Speciality\_Disease**
    25. **WordDictionary**
    26. **Word\_Hospital**
    27. **SentenceDictionary**
    28. **Sentence\_Word**
55. **Algorithms**
56. **Geographic Information Retrieval**
    1. **Definition**
    2. **Examples**
57. **Boyer Moore Matching Algorithm**
    1. **Definition**
    2. **Examples**
58. **Haversine Formula**
59. **Definition**
60. **Example**
61. **System Implementation and Test (SIT)**
62. **Introduction**
63. **Database relationship Diagrams**
64. **Screen shots / Performance measures**
65. **Test Plan**
66. **Features to be tested**
67. **Features not to be tested**
68. **Testing Tools and Environment**
69. **Test Cases**
    1. **Login**
    2. **Search Hospital**
    3. **Import Hospital Using Excel**
    4. **Create Hospital**
    5. **Create Hospital User’s Account**
    6. **View Hospital Information**
    7. **Search Doctor <GU> <US>**
    8. **Create Appointment Online**
    9. **Cancel Appointment**
    10. **Feedback**
    11. **Rating Hospital**
    12. **Add New Doctor**
    13. **Search List of Doctor <HU>**
    14. **Search List of Hospital <AD>**
    15. **Update Doctor Information**
    16. **Upload Photo**
    17. **Update Hospital Information**
    18. **View List of Appointments**
    19. **View Hospital Statistics**
70. **Checklists**
71. **System User’s Manual**
72. **Installation Guide**
73. **User’s Guide**