# E-MEDICAL CONSULTANCY

**A**

**Synopsis**

**Submitted in partial fulfillment for the award of the Degree**

**of**

**MCA**

**UNDER SUPERVISION OF:**

| SUBMITTED BY | |
|---|---|
| **NAME** | **ENROLLMENT NO.** |
|  |  |

# E-MEDICAL CONSULTANCY

**Under Supervision of    :**


**Submitted By:**

**Name**                         **:**

**Programme**               **:**          **MCA**

**Enrolment No.**          **:**

**Study Center Code**   **:**

**Study Center Name**  **:**

# E-MEDICAL CONSULTANCY

## TABLE OF CONTENT

# 1. TITLE OF THE PROJECT

# E-MEDICAL CONSULTANCY

# 2. INTRODUCTION

This project is a web based project which provides online medical solution to the medical service seekers. **E-medical Consultancy** is **online consultation from leading healthcare institutions and professionals in various specialties**. Users can send their medical queries and get an opinion. This project is a part of **www.suchanaonline.com** which is a multiple information portal which provide information and online services to users, it has no. of links like e-job solution, matrimonial, dating, entertainment etc. I am working on e-medical consultancy. By logging on this user can access their email account which is provided after the registration. Each user have their unique login id and password, there is **two type of user one is medical service seeker another is medical service provider**. There is a search facility available for user to search desired service. This is a web project which helps in:-

- Free Medical advice

- Physicians help users to get the best treatment.

- Asking doctors Medical Questions, get advice.

- Online Information ,symptoms, health, treatment.

- Fast, simple and affordable online medical consultation.

- Evaluation of Lab results.

- Online Pediatrician and Medical Questions Online For Children.

- Online Appointments.

- Registration for getting blood.

- Registration for blood donation.

# <u>OBJECTIVE</u>

As we know that today web is growing day by day people are aware of internet its technology there is no. of sites who provides no. of services to the no. of customer as online market, online share trading online banking, online book shop etc so that my project guide advise me to develop a site to provide consultancy service in the medical related field there are some objectives of the sites.  The main objective is to bring all the medical services on one platform now a day's web is growing day by day. People are aware of web .It is easily accessible by many user so that I decided to design a site where user can find desired medical information.

- To bring all the medical facility on one platform.

- Medical service seeker can search for no. of medical services.

- Medical service provider can reach to no. of service seeker.

- User can search for desired service.

- Medical service seeker and provider can communicate through email.

# 3. PROJECT CATEGORY

We have several alternative suggestions about the project category like: desktop application, web-based application, OOPs application, Networking, RDBMS etc. Out of available one we have opted Web based application based on client server architecture. The proposed system falls into the category of Multimedia. A web based system has two types of pages one is static web pages and another are dynamic web pages, which are saved on web server and can be seen by sending request to web server through HTTP protocol.

**Static web pages**: - Static web pages are easy to spot sometimes we can pick them out by just looking at the content of the page. The content (text, images, hyperlinks, and so on) and appearance of static web pages is always the same regardless of who visits the page, or how and when they arrive at the page, or any other factors.

**Dynamic web pages**: - The dynamic web pages are web pages, which we can interact like a time is shown on the page or we are sending information through web form, online chat, sending mail on net etc all the action this action performed with the help of dynamic web pages.

**Web Server**: - Web server are software that manage web pages and make them available to client browser via local network or over the internet. In the case of the internet, the web server and browser are usually on two different machines, possibly many miles apart. However, in a local situation you can set up machine that runs the web server software, and then use a browser on the same machine to look at its web pages.

# 4. SOFTWARE SPECIFICATION

**Software:** - The software packages are used

- Operating System: - Windows XP professional
- Front End :- ASP.NET
- Back End: - SQL Server 2000

❖ **Operating System**

Factors that would influence the choice of an operating system

- Support for the programming language
- Feature like multitasking, backup and recovery
- Performance related issue
- Open system or patented
- Support for disk mirroring
- Data communication
- Availability of hardware
- Single user/ multi-user/ network operating system

On the basis of following fact and on the environment on which the purposed system to be work we have selected Windows-XP.

❖ **Front-End**

As we know that such computer language can be use in software development, which must have the following criteria

- Easy To Learn
- Convenient in coding
- Easy To use control structure
- Lesser input provides larger output
- Highly efficient and productive

- Compatibility with other language and other tools
- Support latest technologies
- Provides flexibility etc.

Keeping the aforesaid criterions we have opted ASP.net as Front end tools to develop the application shell. This project is a web based project so that I have decided to develop this site using ASP.net as a front end and for back end I have decided to use SQL server. There is following features which inspire me to use these packages.

## Front End

## ASP.net Features: -

- ASP.net is a radical update of Microsoft's Active Server Pages (ASP). ASP.net is a powerful server based technology designed to create dynamic and interactive HTML pages on demand for your World Wide Web site or corporate internet. It is designed to improve upon nearly every feature of classic ASP, from reducing the amount of code you need to desire to giving you more power and flexibility

- ASP.NET also constitutes a key element in Microsoft's.NET framework, providing Web-based access to the immensely powerful.NET development environment. It allows us to create Web application in a new flexible way by placing commonly used code into reusable controls of various kinds that can be fired by events initiated by our site's users.

## Back-End

Factors that affect the choice of a database management system are:-

- Knowledge and skill levels available for developing application on a DBMS
- Issue Performance
- Interface with other DBMS
- Compliance to Industry Standard
- Support of troubleshooting

- Number of Database supported etc.
- Data Security

Assuming the fact given above on that basis we have selected Oracle 8 as Back-End tool in our software project.

**SQL Server 2005 features**:-

- **Information representation**: - In SQL server, data is represented in terms of rows and columns of a table. data stored as a table can be easily visualized
- **Unique definition of rows**: - The relation model requires each row to be uniquely defined by at least one or more columns of a table. The unique row requirement ensures that each row in the table can be accessed and changed independently from other rows of the table. It means changes made to a tow in the table do not affect the other rows.
- **Systematic treatment of Null Values**: - SQL server like most RDBMS treats Null values, zeros and blanks differently. While creating a table, one can specify whether a field allows Null or not.
- **High level Update, Insert and Delete**: - In SQL server, if a record is updated or deleted in the master table the corresponding records in the referencing table is also updated or dropped.

❖ **Hardware Specification**

On the basis of above software specification we have decided the following configuration of hardware for server and client.

❖ **Machine Configuration**

- PROCESSOR – P4 3.06 GHz
- RAM- 256 MB
- HDD- 40 GB UPGRADABLE UPTO 80 GB
- CD-ROM
- MONITOR- VGA COLOR
- PRINTER- 132 COLUMN DOT MATRIX

# 5. ANALYSIS

**A**s we know that the system development starts with System Analysis known that "**A System is a collection of interrelated components that work together to achieve common objective and system analysis is the specification of what the system, I required to do**" it is conducted with the following objective in mind:

- ➤ Identification and analysis of customer needs.
- ➤ System evaluation for identification
- ➤ Performing economic and technical analysis
- ➤ Allocating functions to manpower
- ➤ Establishing cost and schedule constraints
- ➤ Creating a system definition that forms a foundation for all subsequent development activities.

According to the IEEE "The application of systematic, disciplined, quantifiable approach to the development operation, maintenance of software: that is the application of engineering to software." According to the process model opted as Water fall life cycle in this model Design just comes after the requirement specification or analysis phase

# <u>SOFTWARE DEVELOPMENT LIFE CYCLE</u>

**Waterfall model: -**

It also called the linear sequential model or classic life cycle. Waterfall model suggests a systematic, sequential approach to software development that begins at the system level and progresses through analysis, design, coding testing and maintenance. I am implementing this software development life cycle model in my project because it is simple and easy to implement. It has following phases:-

- **Software requirements analysis**:- The requirements gathering process is intensified and focused specifically on software. To understand the nature of the programs to be built, the software engineer must understand the information domain for the software, as well as required function, behavior, performance, and interfacing. Requirements for both the system and the software are documented and reviewed with the customer.

**Feasibility study:-**

This is determining whether the system requested is feasible or not. It includes—

**1. Technical feasibility** is it possible that the work can be done with current equipment, software technology and available personnel? And if new technology is required what is the possibility that it can be developed.

**2. Economic feasibility will** there sufficient be benefits in creating the system.

**3. Operational feasibility** wills the system be used if it is developed and implemented or will there be resistance from the users. As in my project information about requirements are gathered from many sources like hospitals, doctor, people medical corners etc

- **Design**: - Software design is actually a multi step process that focuses on four distinct attributes of a program: data structure, software architecture, interface representations, and procedural detail. The design process translates requirements into a representation of the software that can be assessed for quality before code generation begins. Like requirements, the design is documented and becomes part of the software configuration. As in my project design should be like that there is a login interface which will accept user id and password for login and there is another links will be use for registration of user there is a no. of button so that user can navigate from one page to another page but for accessing their email account they must use their login id and password

- **Code generation**: - The design must be translated into machine readable form. The code generation step performs this task. If design is performed in a detailed manner, code generation can be accomplished mechanistically. As we know ASP.NET is a tool which have no. of server controls so that we can put controls according to our design which is translated into HTML coding at back to make page dynamic we use VB.NET to make page interactive.

- **Testing**: - Once code has been generated, program testing begins. The testing process focuses on the logical internals of the software, assuring that all statements have been tested, and on the functional externals that is conduction tests to uncover errors and ensure that defined input will produce actual results that agree with required results. First we test the system with white box testing. The white box testing will test all the coding of the modules. It will check the entire logical path. Loops and conditions applied. After while box testing. It will undergo the black box testing in which a set of inputs N prepared to test the functional requirements of this module. In the unit list of this module interface is tested to ensure that information properly flows into and out of the program because the module is not a stand alone program, drover software must be developed for this unit test the driver is nothing but a main program. To test the module is executed properly.

- **Maintenance**: - Software will undoubtedly undergo change after it is delivered to the customer. Change will occur because errors have been encountered, because the software must adapted to accommodate changes in its external environment or because the customer requires functional or performance enhancements. So that their will be scope to make changes in our system.

# 6. DATA MODELING

**Seeker Table**

| Field name | Type | Constraints | description |
|---|---|---|---|
| user_id | Char (30) | Primary Key | It collect the login user_id |
| pwd | Char (30) | Not Null | For collecting Login password |
| fname | Char (50) | Not Null | First name of user |
| lname | Char (50) | Not Null | Last name of user |
| gender | Char (10) | Not Null | Detail about user gender |
| dob | Date | Not Null | Date of birth of user |
| age | Number(2) | Not Null | Age of user |
| education | Char (50) | Not Null | Educational qualification of user |
| occupation | Char (50) | Not Null | Occupation of user |
| email_id | Char (50) | Not Null | Email id of user |
| alt_email_id | Char (50) | Not Null | Alternate email id |
| phone | Number(10) | Not Null | Phone no. |
| Mobile | Number(10) | Not Null | Mobile no. |
| country | Char (50) | Not Null | Country name |
| state | Char (50) | Not Null | State name |
| city | Char (50) | Not Null | City name |
| address | Char (100) | Not Null | Address of user |
| pincode | Number(8) | Not Null | Pin code |
| date_of_registration | Date | Not Null | Date of registration |

**Admin Table**

| Field Name | Type | Constraints | Description |
|---|---|---|---|
| Username | Char (30) | Not Null | Username |
| Password | Char (30) | Not Null | Password |

**User Table**

| Field Name | Type | Constraints | Description |
|---|---|---|---|
| User id | Char (30) | Primary Key | User id |
| Username | Char (30) | Not Null | Username |
| Password | Char (30) | Not Null | Password |
| Email | Char (20) | Not Null | Email |
| Security_question | Char (80) | Not Null | Security_question |
| Answer | Char (50) | Not Null | Answer |

**Provider Table**

| Field Name | Type | Constraints | Description |
|---|---|---|---|
| User_id | Char (30) | Not Null | It collect the login user_id |
| Pwd | Char (30) | Not Null | For collecting Login password |
| Fname | Char (30) | Not Null | First name of user |
| Lname | Char (30) | Not Null | Last name of user |
| Gender | Char (10) | Not Null | Detail about user gender |
| Category | Char (30) | Not Null | Type of organization |
| Name_of_org | Char (30) | Not Null | Name of organization |
| Specialization | Char (30) | Not Null | Specialization of service provider |
| Email_id | Char (50) | Not Null | Email address of user |
| Alt_email_id | Char (50) | Not Null | Alternate email ID of user |
| Phone | Number(10) | Not Null | Phone no. |
| Mobile | Number(10) | Not Null | Mobile no. |
| Country | Char (30) | Not Null | Country Name |

| State | Char (30) | Not Null | State name |
|---|---|---|---|
| City | Char (30) | Not Null | City name |
| Address | Char (100) | Not Null | Address |
| Pincode | Number(30) | Not Null | Pin code |
| Date_of_registration | Date | Not Null | Date of registration |

**Mailbox Table**

| Field Name | Type | Constraints | Description |
|---|---|---|---|
| Mail_id | Char(50) | Not Null | S. no. of mail |
| Sender | Char(50) | Not Null | Address of email sender |
| Receiver | Char(50) | Not Null | Address of email reciver |
| attachment | Char(100) | Not Null | Save Url of attachment |
| Subject | Char(100) | Not Null | Title or subject of mail |
| Body | Char(200) | Not Null | Matter of mail |
| Postingdate | Date | Not Null | Date of mail |

**Feedback Table**

| Field Name | Type | Constraints | description |
|---|---|---|---|
| Fname | Char(50) | Not Null | First name of user |
| Lname | Char(50) | Not Null | Last name of user |
| Gender | Char(10) | Not Null | Detail of user gender |
| Dob | Date | Not Null | Date of birth |
| Email_id | Char(50) | Not Null | Email address |
| Phone | Number(10) | Not Null | Phone no. |
| Country | Char(30) | Not Null | Country name |
| State | Char(30) | Not Null | State name |
| City | Char(30) | Not Null | City name |
| Address | Char(100) | Not Null | Residential address |
| Pincode | Number(10) | Not Null | Pin code no. |
| Comments | Char(250) | Not Null | Suggestions of user |

**Test_details**

| Field | Type | Constraint |
|---|---|---|
| Receipt_no | Char(30) | Primary key |
| Patient_id | Char (30) | Not null |
| Name | Char (30) | Not null |
| Date | Date | Not null |
| Report | Char (60) | Not null |

**Doctor Master**

| Field | Type | Constraint |
|---|---|---|
| Dr_code | Char (30) | Primary Key |
| Dr_name | Char (30) | Not null |
| Gemder | Char (30) | Not null |
| Date_of_birth | Date | Not null |
| Address | Char (30) | Not null |
| Date_of_join | Date | Not null |
| Desgination | | Not null |

**Blood_receiver**

| Field | Type | Constraint |
|---|---|---|
| User_id | Char(30) | Not Null |
| Name | Char (30) | Not null |
| Address | Char (30) | Not null |
| Requirement_details | Char(100) | Not null |
| Blood_Group | Char (20) | Not null |

## 7. ER Diagram-



E-Medical Consultancy

Feedback
- address
- lname
- phone
- fname
- email id
- country
- gender
- dob
- state
- city
- pincode
- comment

Has User

Has Feedback

Service Provider
- password
- fname
- User id
- lname
- gender
- email
- category
- phone
- mobile
- city
- state
- Alt email
- country
- password
- Name of org
- address
- fname
- pincode
- lname
- specilization
- country

Medical Seeker
- dob
- mobile
- User id
- gender
- education
- occupation
- phone
- email
- alt email
- pincode
- address
- state
- city

Has Mail box

Mailbox
- body
- receive
- sender
- email i
- subject
- poatingdate

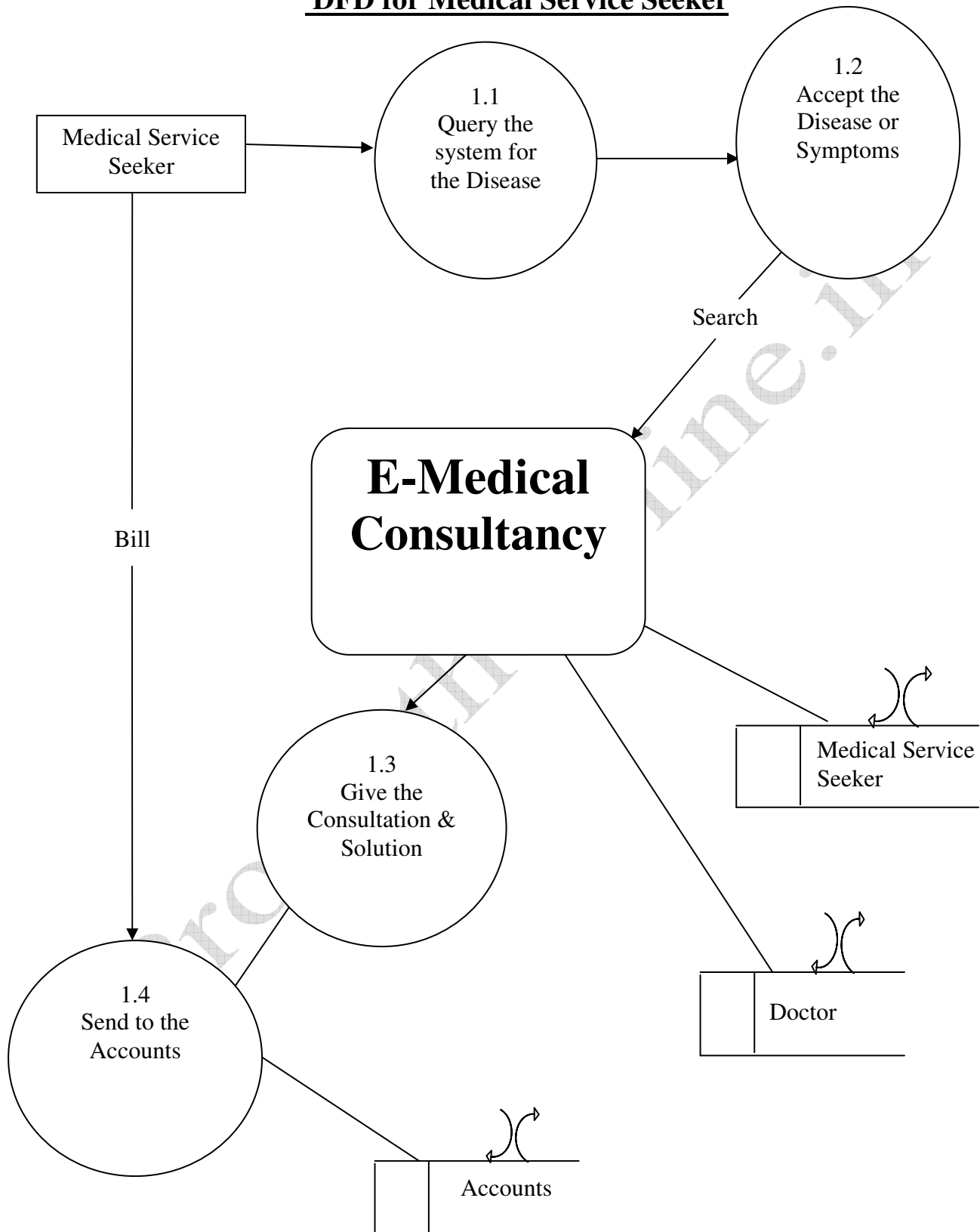# 8. Data Flow Diagram

## Context Level DFD for E-Medical Consultancy

```
        1.                    2.                      3.
   Medical Seeker           Admin              Medical Service
                                                   Provider




       4.                 ┌──────────────┐            5.
     Inquiry              │  E-Medical   │          Accounts
                          │              │
                          │ Consultancy  │
                          └──────────────┘
       9.                                             6.
    Feedback                                        Mailing
                                                    System

             8.
           Online              7.
         Appointments        Doctor
```
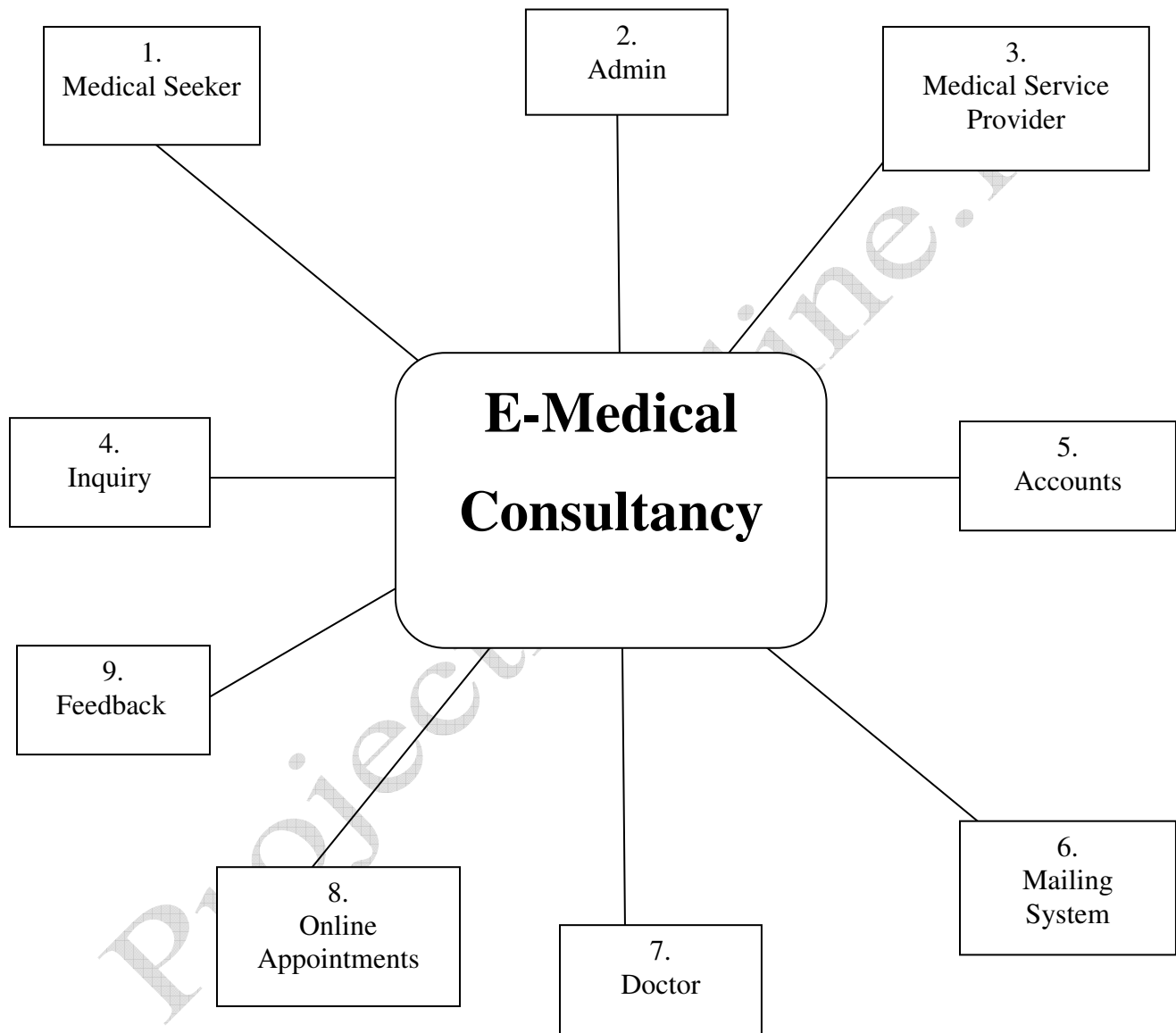
## **DFD for Medical Service Seeker**

## DFD for the Medical Service Provider

Medical Service Provider

2.1
Accept the Seeker Query

2.2
Search for the Consultant from Database

**E-Medical Consultancy**

Doctor

2.3
Give the exact Solution with near Charges

Medical Service Seeker
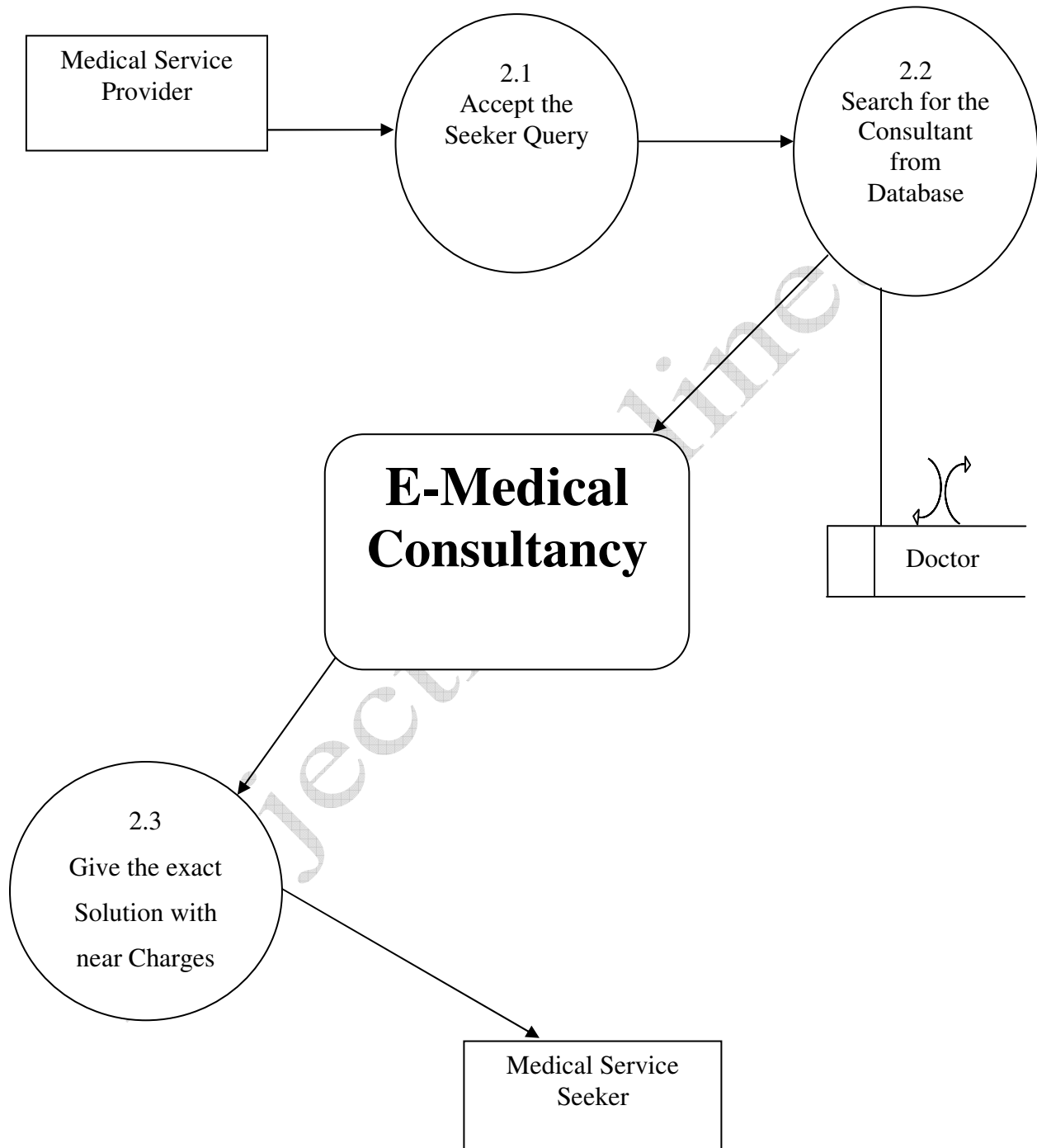
## **DFD for Online Appointment**

Medical Service Seeker

3.1
Accept the required services & the Disease query

3.2
Consult the Doctor & fix the appointment

**E-Medical Consultancy**

Email

Doctor

3.3
Fix the time & send the email to the service seeker

Medical Seeker Service

Print / Screen
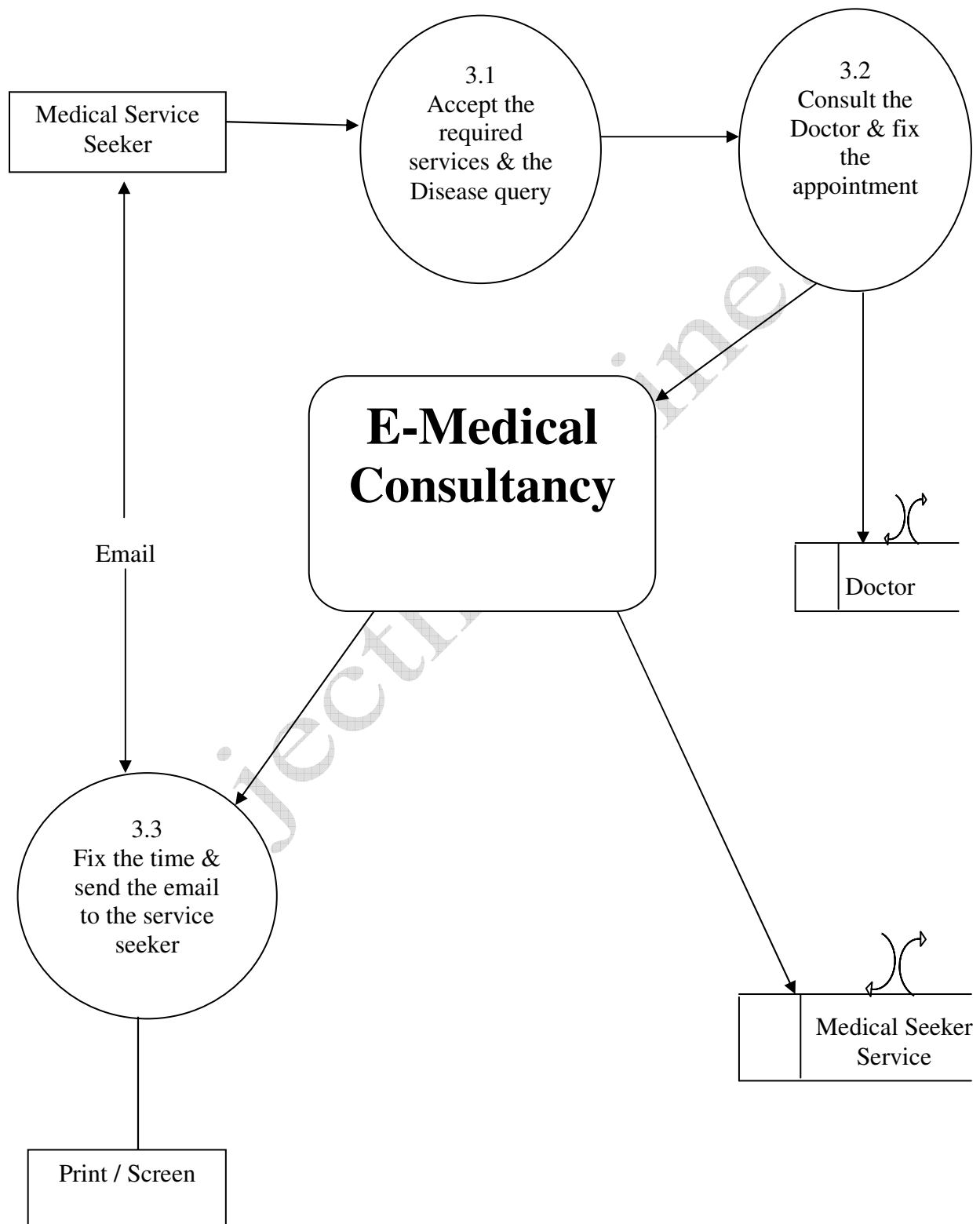
## **DFD for the Doctor Registration**

## **DFD for Online Inquiry**

Medical Service Seeker

4.1
Accept the Services required by the patient inquiry form

5.2
Search the data base for doctor & its specialization

**E-Medical Consultancy**

5.3
Generate the best service & Approximately rates

Inquiry

Browser /Print / Screen
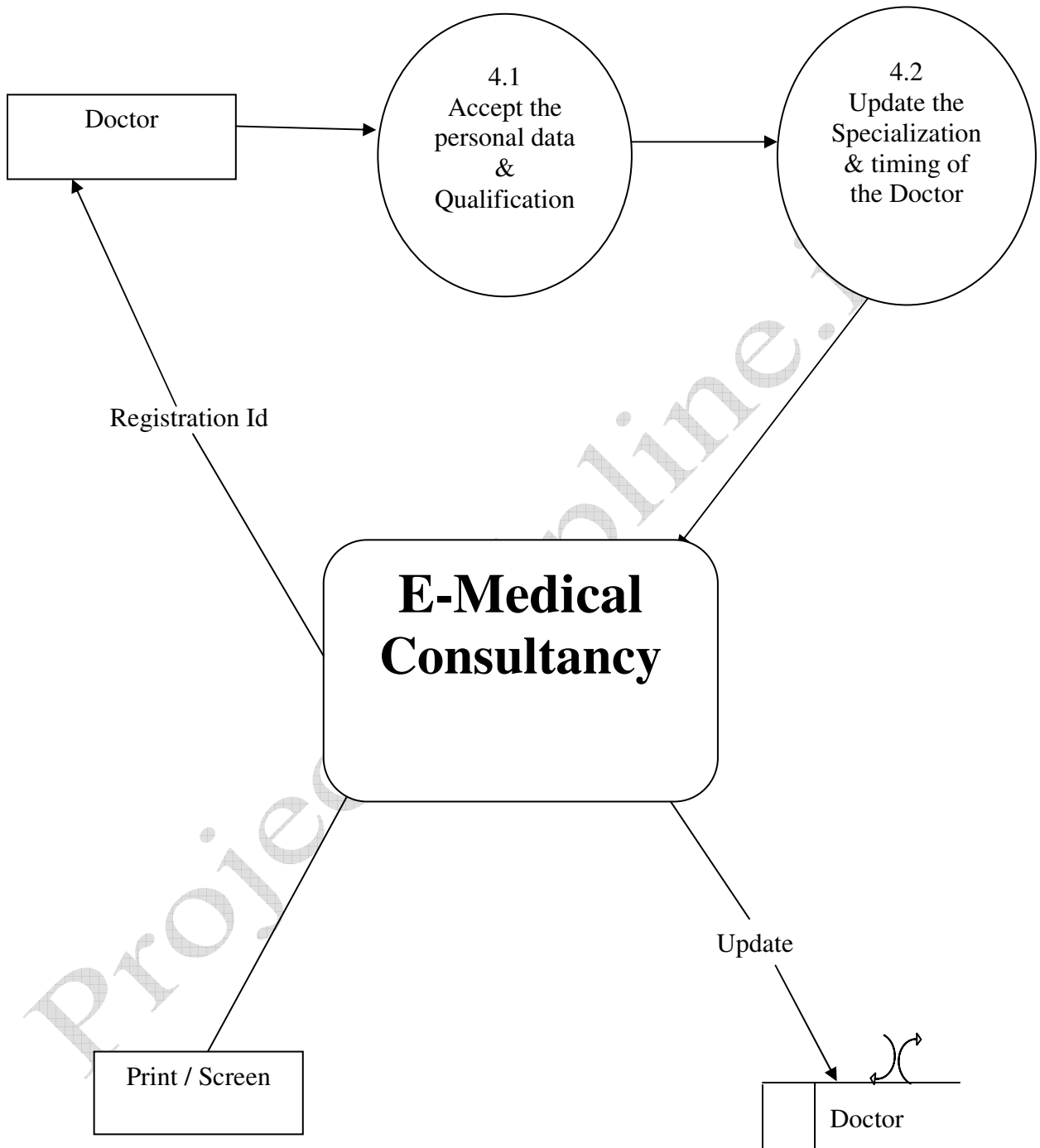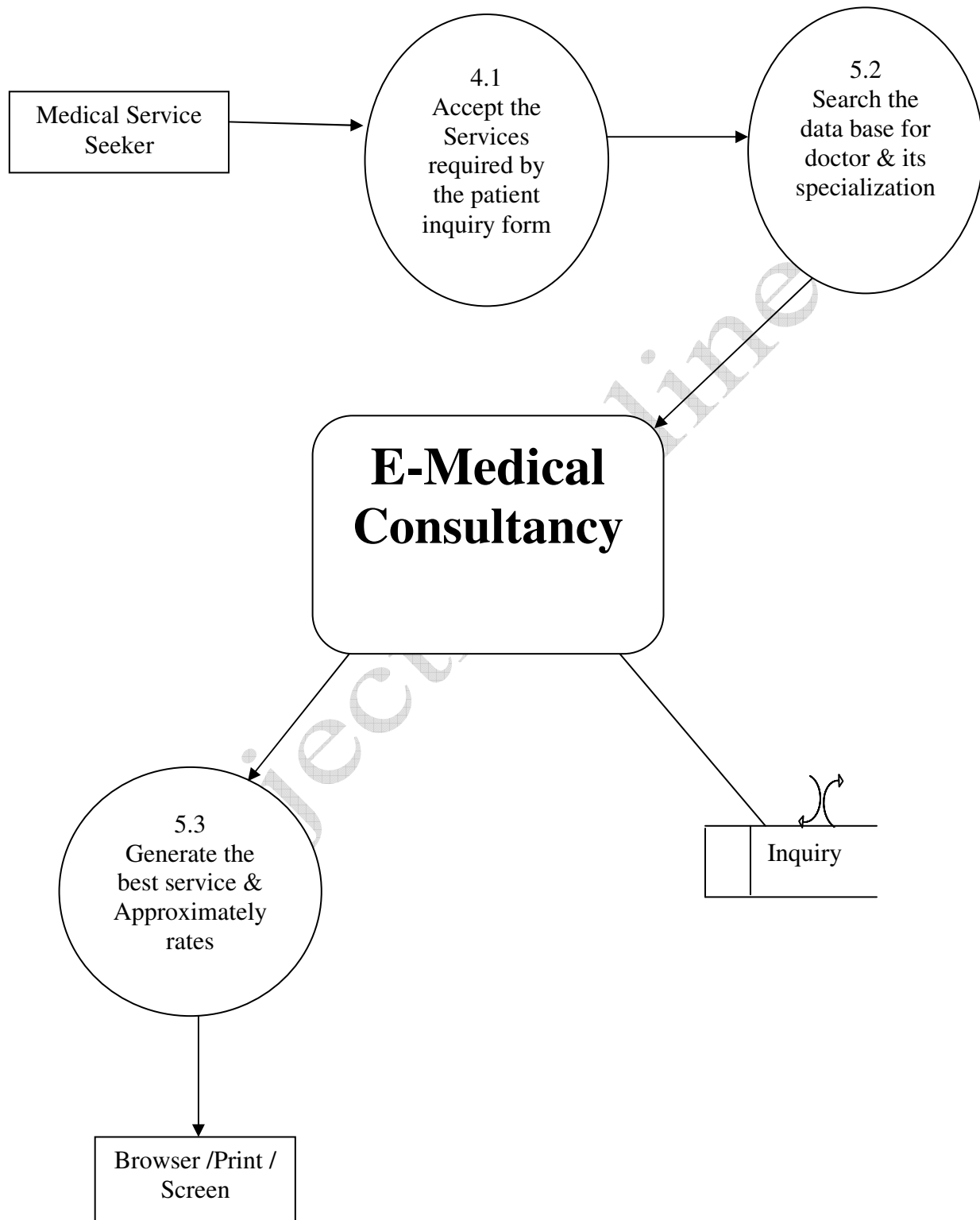
## **DFD for Feed back**
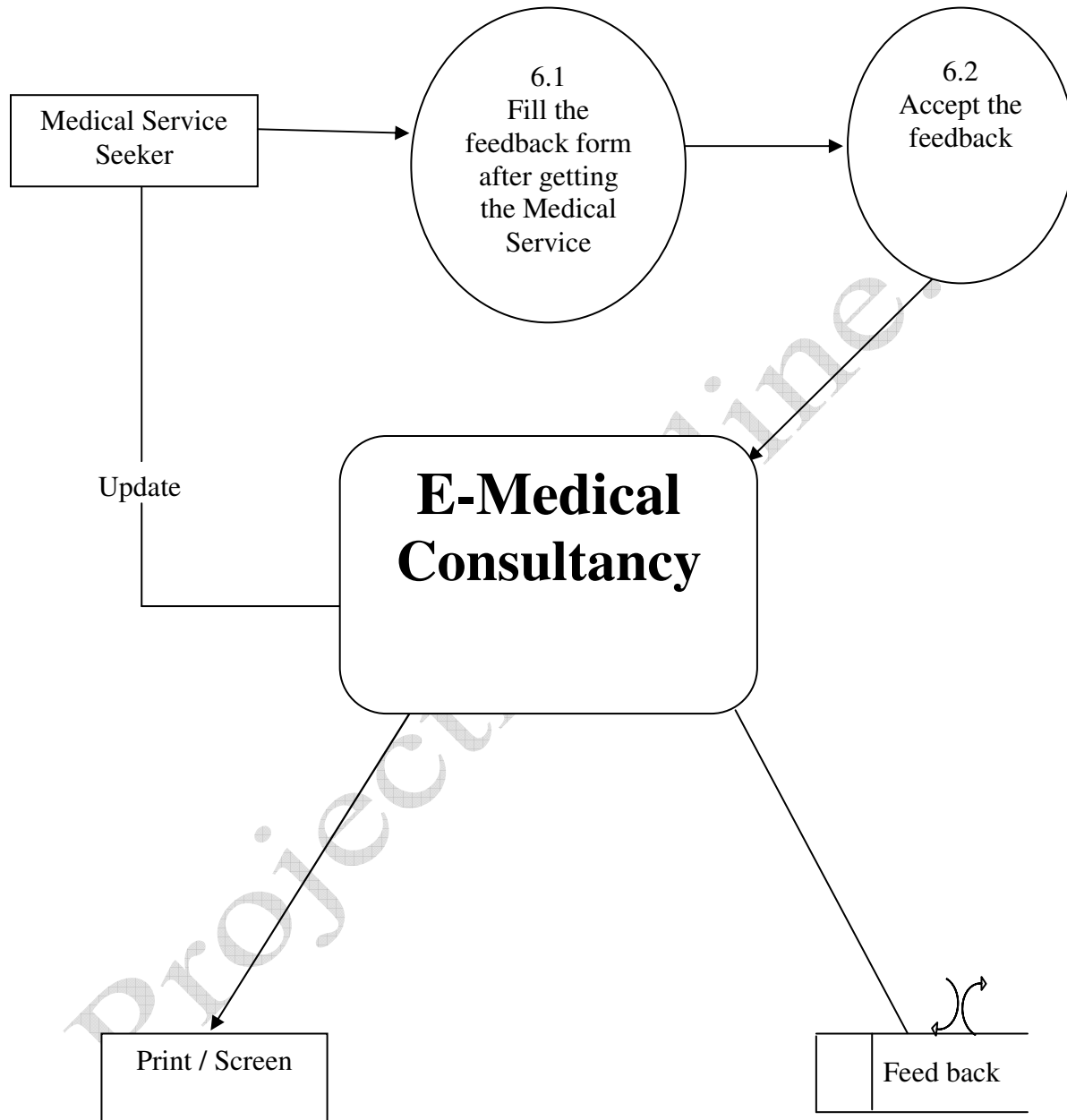
# 9. Module Description

**System Modules and Operation**

The system is divided into various modules. After doing the requirement specification and functional requirement .There are following main operation in our systems which are listed below:

- **REGISTERATION (MODULE 1)** : - The users are first registered required to register themselves so that are acquire a unique user id and password
- **LOGIN (MODULE 2)** : - In the module both type of user are required to enter their user id and password after all security checks they are allowed to access their mail account
- **SEARCH (MODULE 3):** - In this module user can search for doctors, hospitals, nursing home and clinic etc.
- **FEEDBACK (MODULE 4):** - In this module user can give their feedback so that further change can be made according to requirement
- **ABOUTUS (MODULE 5):** - This module contains information about the organization, and history of organization.
- **CONTACT (MODULE 6):**- This module contains the address and phone no. of organization if user wants to contact with organization than he can avail organization address.
- **SITE MAP (MODULE 7) :** - This module define the structure of site
- **DOCTORS (MODULE 8) :** - This module define the doctors involved in medical **consultations and appointments**.
- **BLOOD DONATION (MODULE 9) :** - This module is related to the blood donators, receivers, blood donation camps etc.
- **LAB RESULTS (MODULE 10) :** - This module is related to the medical test reports of the patients.

- **ADMIN PANEL (MODULE 11): This module is related to the functionalities of the administrator:**
- Adding Details of the doctors involved in e-medical consultancy
- Responding the online appointments.
- Responding Online medical questions
- Adding medical test reports
- Uploading online information, treatments, symptoms, health treatments.

# 10. Report Generation

**'Crystal Reports'** is a popular third party package that is included with ASP.NET, which allows you to create reports for your application. The package consists of a designer - where you can design and test the reports, Crystal Reports API calls and Crystal Report Viewer control. The reports generated by the administrator are

- ❖ Users Details: To get users details who are registered
- ❖ Students Report: To get details of the doctors who are medical involved in e-medical consultancy and who want to involve in e-medical consultancy.
- ❖ Lab Evaluation: o get medical test reports of the patients.
- ❖ Mailbox: o get details of the advices sent to the users through e-mail.

# PROJECT PLANNING & SCHEDULING

Gantt charts mainly used to allocate resources to activities. The resources allocated to activities include staff, hardware, and software. Gantt charts (named after its developer Henry Gantt) are useful for resource planning. A Gantt chart is special type of bar chart where each bar represents an activity. The bars are drawn along a timeline. The length of each bar is proportional to the duration of the time planned for the corresponding activity.

*Gantt chart is a project scheduling technique. Progress can be represented easily in a Gantt chart, by coloring each milestone when completed. The project will start in the month of January and end after 4 months at the end of April.*
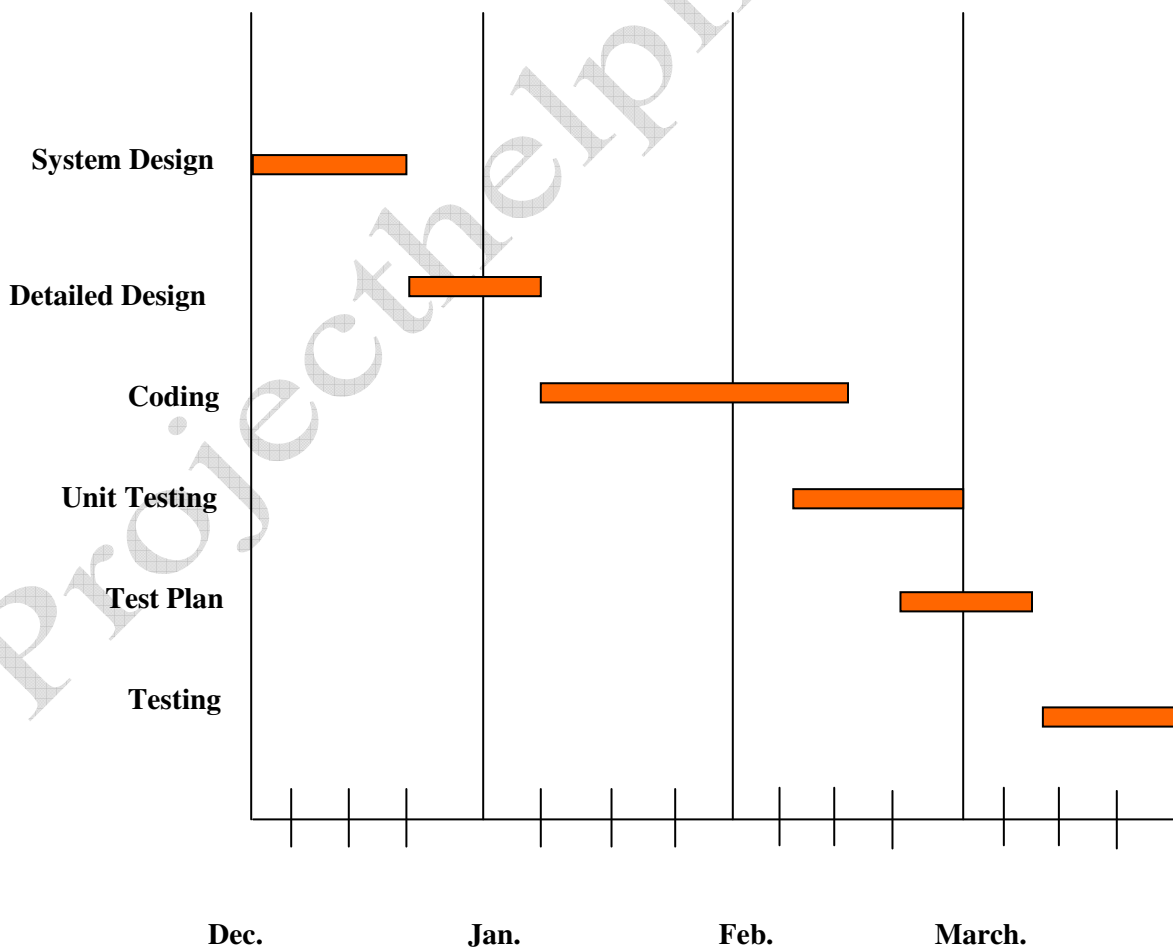
### Pert Chart

**PERT** (Project Evaluation and Review Technique) charts consist of a network of boxes and arrows. The boxes represent activities and the arrows represent task dependencies.

**PERT** chart represents the statistical variations in the project estimates assuming a normal distribution. Thus in a PERT chart instead of making a single estimate for each task, *pessimistic, likely*, and *optimistic* estimates are also made. The boxes of PERT charts are usually annotated with the pessimistic, likely, and optimistic estimates for every task. Since all possible completion times between the minimum and maximum durations for every task have to be considered, there are many critical paths, depending on the permutations of the estimates for each task. This makes critical path analysis in PERT charts very complex. A critical path in a PERT chart is shown by using thicker arrows. The PERT chart representation of the E-Medical consultancy problem of Figure A. is shown in Figure B.

| Task | ES | EF | LS | LF | ST |
|------|-----|-----|-----|-----|-----|
| Specification Part | 0 | 15 | 0 | 15 | 0 |
| Design Database Part | 15 | 60 | 15 | 60 | 0 |
| Design GUI Part | 15 | 45 | 90 | 120 | 75 |
| Code Database Part | 60 | 165 | 60 | 165 | 0 |
| Code GUI Part | 45 | 90 | 120 | 165 | 75 |
| Integrate and Test | 165 | 285 | 165 | 285 | 0 |
| Write User Manual | 15 | 75 | 225 | 285 | 210 |

**Figure  A :** Different Tasks for the E-Medical Consultancy shown in above table.
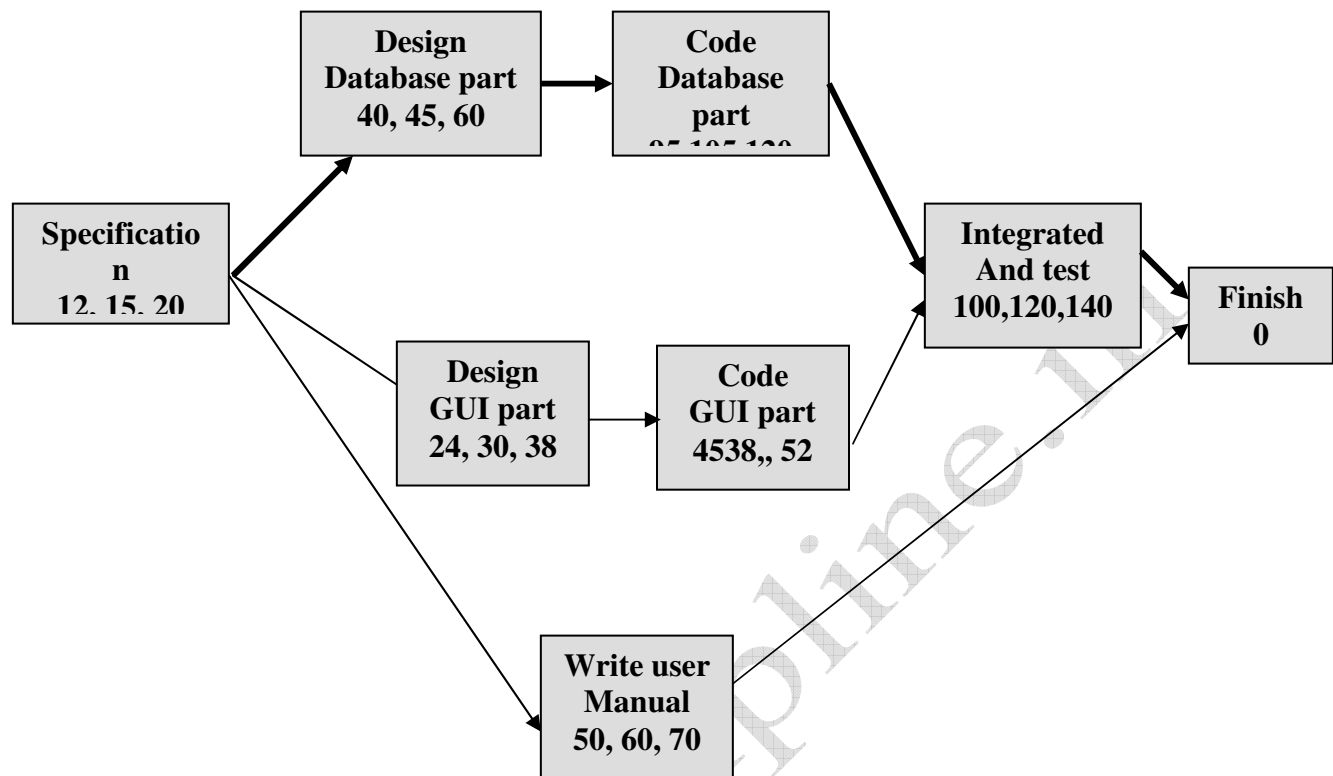
**FIGURE B : PERT Chart** representation of the E-Medical Consultancy.

PERT charts are a more sophisticated form of activity chart. In activity diagrams only the estimated task durations are represented. Since the actual durations might vary from the estimated durations, the utility of the activity diagrams is limited.

# 11. SECURITY AND VALIDATION CHECKS

Security is the major concern for any organization so that any unauthorized user can not access the organization data and any other secure things, same thing is applicable in our project there should be a proper authentication for each user so that no body can access user account accept the authorized user. In my project I have implemented the security checks. By providing each user with unique user id and password through user id and password user can access their email account and can read mails and can send mails

# 12. FUTURE SCOPE OF THE PROJECT

Now a day's there is a big demand of different types of software, which is because IT has become the main part of our New World. There is a big need of different software. People want software for every specific task to make that work easier.I have developed the software "**E-MEDICAL CONSULTANCY**" which works easy on Internet.

This project is made due to the demand for medical consults. We can add chat engine in near future so that doctors or other professionals can chat or discuss on diagnosis related topics. The database can be modified at any time when the requirements to be changed. The controls used in the Front End can be modified and the new web pages can be modified and implemented whenever required.

This system electrically matches according to the portfolio and description and shows the related information on the web. Software scope describes the data and control to be processed, function performance, constraints, interfaces and reliability. Function describes in the statement of scope are evaluated and in some case refined to provide more detail prior to the beginning of the estimation. Because both cost and schedule estimates are functionally oriented, some degree of decomposition is often useful. We can implement easily this application. Reusability is possible as and when we require in this application. We can update it in it's next version. We can add new features as and when

we require. There is flexibility in all the modules. Scope of this document is to put down the requirements, clearly identifying the information needed by the user, the source of the information and outputs expected from the system.

# 13. CONCLUSION

E-Medical consultancy allows users to register, pay, and ask a medical question. Answers are provided by doctors who chose to participate.I have decided to develop a project solution that addresses the challenges and allows for a website to remain competitive.

It has been developed in ASP.NET, keeping in mind the specifications of the system.
For designing the system we have used simple data flow diagrams.

Overall the project teaches us the essential skills like:

❑ Using system analysis and design techniques like data flow diagram in designing the system.
❑ Understanding the database handling and query processing using SQL Server.

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