Unit 10 – Database Development

Task 2

Database Design for Doctor's Surgery

Introduction

The transition from a paper-based system to a digital database marks a significant advancement for the Doctor’s Surgery. This transition aims to streamline operations, enhance accessibility to patient records, and improve overall efficiency. The database will serve as a centralized repository for patient information, appointment scheduling, and staff management.

Design Considerations

The design of the database must prioritize usability, flexibility, and comprehensiveness. It should accommodate the diverse needs of both patients and staff while maintaining simplicity and accessibility. A well-designed database will facilitate smooth navigation and efficient data management.

Hardware Requirements

- Operating System: Windows 10 for PC

- Processor: 1.6 GHz, Dual-Core Processor

- RAM: 4GB (64-bit) or 2GB (32-bit) systems

- Hard Disk Space: 4GB

- Graphics Card: DirectX 10 Graphics Card

- Display Resolution: 1024x768

- Additional Requirements: Internet Access and a Microsoft Account

Software Requirements

The database will utilize Microsoft Access and requires Windows 10 or above.

Validation Methods

Type Validation:

Numeric fields will only accept numerical input, ensuring data integrity.

Presence Validation:

Mandatory fields must be filled, preventing incomplete entries and prompting users with error messages.

Unique Identifier:

Unique identifiers such as NHS Number for patients and I.D. Number for doctors ensure data uniqueness and facilitate accurate identification.

Range Check:

Numeric fields undergo range checks to ensure values fall within acceptable limits, minimizing input errors.

Format Validation:

Date and time fields will adhere to specified formats (e.g., DD/MM/YYYY), ensuring consistency in data entry.

6. Restricted Choice:

Dropdown menus, combo boxes, and radio buttons provide predefined options, reducing input errors and enhancing user experience.

The database employs user-friendly interfaces such as dropdown menus, combo boxes, and radio buttons to facilitate fast and accurate data entry. These interfaces promote ease of use and enable users to make informed decisions efficiently.

This introduction outlines the key

**Data Dictionary**

Patient’s Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Size** | **Validation** |
|  |  |  |  |
| NHS Number | Short Text | 10 | Primary Key |
| Forename(s) | Short Text | 30 | Title Mr./Ms./Miss |
| Surname | Short Text | 30 |  |
| Address 1 | Short Text | 35 |  |
| Address 2 | Short Text | 35 |  |
| Town/City | Short Text | 20 |  |
| Postcode | Short Text | 8 |  |
| Date of Birth | Date/Time | 8 | dd/mm/yyyy |
| Current Age | Number | 3 |  |
| Gender | Dropdown Box | 6 | Male/Female |
| Email | Short Text | 50 | Must Contain @ |
|  |  |  |  |

Appointments table

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Size** | **Validation** |
|  |  |  |  |
| Appointment ID | Short Text | 15 |  |
| Patient’s NHS Number | Short Text | 10 | Input mask (10-digit number) |
| Date of Appointment | Date/Time | 8 | dd/mm/yyyy |
| Time of Appointment | Date/Time | 8 | HH:MM (24hr) |
| Location | Short Text | 10 |  |
| Doctor’s ID | Short Text | 30 |  |
|  |  |  |  |

Doctors Table

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Data Type** | **Field Size** | **Validation** |
|  |  |  |  |
| Doctor ID | Short Text | 10 | Input mask (10-digit number) |
| Appointment ID | Short Text | 15 |  |
| First Name | Short Text | 30 |  |
| Last Name | Short Text | 30 |  |
| Specialism | Short Text | 30 |  |
| Email | Short Text | 50 |  |
| Availability | Yes/No | 10 |  |

|  |
| --- |
| Patient’s Table  NHS number (PK)  Forename  Surname  Address 1  Address 2  country  Postcode  Date of Birth  Current Age  Gender |

Entity Relationship Diagram (ERD)

|  |
| --- |
| Appointment Table  Appointment ID(PK)  Patients NHS number (FK)  Date of Appointment  Time of Appointment |

|  |
| --- |
| Doctor’s Table  Doctor ID(PK)  Appointment (FK)  First Name  Last Name  Specialism  Availability |

Home Screen

A black line drawing of lungs

Description automatically generated ASPIRE SURGERY

APPOINTMENTS PAIENTS DOCTORS

Report 1 Report 2 report 3

Queries Queries Queries Queries

Queries Queries Queries

Queries

1. All the female patients
2. All the patients born after 1998
3. All the doctor surnames sorted
4. All appointments for Radhika on 26/06/2024
5. Appointment query

Reports:

Reports for patients:

| **Paients** | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NHS Number** | **Forename(s)** | **Surname** | **Address 1** | **Address 2** | **Town/City** | **County** | **Post Code** | **Date of Birth** | **Current Age** | **Gender** |
| 0 |  |  |  |  |  |  |  |  | 0 |  |
| 257002445 | Sai | Nethi | 2 Braefield | Woodwalton",PE28 5ZH | Reading | The United Kingdom | LS08 7YH | 25/01/1979 | 70 | Male |
| 775932146 | Navya | kanumetta | Flat 1, 103 Brighton Road, | Flat 1, 103 Brighton Road, | London | The United Kingdom | LS99GR | 24/12/1989 | 18 | Male |
| 123456789 | Mohul | Jain | 17 Fletsand Road | Wilmslow",SK9 2AD | Reading | The United Kingdom | RG1 3ED | 01/06/2004 | 20 | Male |
| 486535423 | Mamtha | Kanumetta | Flat 1, 103 Brighton Road, | Flat 1, 103 Brighton Road, | Reading | The United Kingdom | RG1 3LF | 08/06/2004 | 20 | Male |
| 147896355 | Bovis | Homes | 10 Keston Drive, | End",SO18 3AG | Reading | The United Kingdom | RG1 4GF | 02/06/2008 | 15 | Male |
| 452357235 | Pranav | Nethi | Flat 2, 5A Ivy Terrace, | Eastbourne",BN21 4QR | Reading | The United Kingdom | RG1 8OE | 12/08/2004 | 20 | Male |
| 411555222 | Indeever | Nethi | 40 Mawfa Avenue, | Sheffield",S14 1AH | Reading | The United Kingdom | RG1 9GT | 01/06/2004 | 20 | Male |
| 334323490 | Ricky | williams | 7 Williams Place, | Snodland",ME6 5GZ | Reading | The United Kingdom | RG1 9MN | 24/06/1999 | 25 | Male |
| 448866224 | han | Li | 82 Birkbeck Road, | Beckenham",BR3 4SP | Reading | The United Kingdom | RG12 9GT | 08/06/1969 | 54 | Male |
| 234212334 | fgdfgdf | dfbsdf | 3 Ingram Crescent, | Bewdley",DY12 2BS | Reading | The United Kingdom | RG2 7UH | 05/06/2023 | 1 | Female |
| 683453468 | Akhil | Kanumetta | 1 The Paddocks, Husphins Lane | m | Reading | The United Kingdom | RG2 9RR | 05/06/2004 | 20 | Male |
| 458695236 | Sam | Sung | 53 Mill Gardens | 1 Beverley Avenue, | Reading | The United Kingdom | RG3 4FL | 07/06/2006 | 17 | Female |
| 545151385 | Yogesh | Jarugu | Flat 6, Beachwalk, 3 - 5 Gordon Road | Bournemouth",BH1 4DW | Reading | The United Kingdom | RG41 9FF | 08/06/1947 | 74 | Male |
| 854653834 | Joe | Li | "Ty Fonmon, Four Roads", | SA17 4SD | Reading | The United Kingdom | RG5 4OU | 09/06/2022 | 12 | Male |
| 458412415 | Au Man | Qu | Unit 1 Fairhills Industrial Estate, | "Irlam",M44 6ZQ | Reading | The United Kingdom | RG6 6BN | 07/08/2012 | 10 | Female |
| 544536155 | Shivij | Kanoijia | 58 Rosebery Road, | Grays",RM17 5YT | Reading | The United Kingdom | RG6 8HB | 04/06/1964 | 52 | Male |
| 559977332 | pibeex | loban | 7 Comb Hill Road, | Haltwhistle",NE49 9EZ | Reading | The United Kingdom | RG7 HA | 30/07/1999 | 89 | Female |
| 545214424 | Srinivas | Kanumetta | Flat 1, 103 Brighton Road, | Flat 1, 103 Brighton Road, | Reading | The United Kingdom | RG8 7HF | 24/06/1999 | 45 | Male |
| 424742454 | Yat Sing | Fong | v37A Grosvenor Avenue, | Long Eaton",NG10 3FQ | Reading | The United Kingdom | RG9 8IG | 25/07/1999 | 45 | Male |
| 852647391 | Mark | Chan | 9 Kings Lane, | Windlesham",GU20 6HR | Slough | The United Kingdom | SL9 5HR | 09/06/1999 | 40 | Male |

Report for doctor/employees:

| **Doctors/Employees** | | | | | |
| --- | --- | --- | --- | --- | --- |
| **Doctors Number** | **Forename(s)** | **Surname** | **Specialist fields of medicine** | **Availability** | **Date of birth of the doctor** |
| 19193 | loban | Cups | genral treatment | Yes | 17/11/2023 |
| 19194 | Radhika | Krishna | genral treatment | Yes | 18/11/2023 |
| 56643 | Crish | Wood | genral treatment | Yes | 17/11/2023 |
| 97614 | samuel | King | genral treatment | Yes | 17/11/2023 |
| 140518 | Zarha | Thomas | genral treatment | Yes | 17/11/2023 |
| 202921 | newlocl | Key | genral treatment | Yes | 18/12/1999 |
| 226945 | Suhaib | scott | genral treatment | Yes | 18/11/2023 |
| 273950 | harry | Smoke | genral treatment | Yes | 18/12/1999 |
| 308717 | deepaka | Smith | genral treatment | Yes | 18/11/2023 |
| 388282 | Homes | Turner | genral treatment | Yes | 19/11/2023 |
| 429506 | Neha | Kakera | genral treatment | Yes | 17/11/2023 |
| 441658 | bovis | Greener | genral treatment | Yes | 18/11/2023 |
| 525940 | trevor | Evans | genral treatment | Yes | 19/11/2023 |
| 602736 | Asil | Caner | genral treatment | Yes | 19/11/1963 |
| 620750 | Jennie | Wood | genral treatment | Yes | 17/11/2023 |
| 729479 | ganesh | Nemth | genral treatment | Yes | 18/11/2023 |
| 799377 | David | Cotton | genral treatment | Yes | 18/11/2023 |
| 865541 | parit | Krish | genral treatment | Yes | 31/12/2007 |
| 953755 | Akhil | Kanumetta | genral treatment | Yes | 18/11/2023 |
| 978852 | deepa | Prem | genral treatment | Yes | 18/11/2023 |

Reports for appointments:

| **Appointments** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Appointment Number** | **Date (dd/mm/yyyy)** | **Time (24:00hr)** | **Gender** | **Room Number** | **Name Of The Doctor** | **NHS Numeber** | **Forename** | **Surnames** |
| 1232 | 15/06/2024 | 10:00:00 | female | 1 | Zarha | 2009334435 | navya | kanumetta |
| 1234 | 16/06/2024 | 10:30:00 | male | 1 | samuel | 612434435 | Ricky | Lal |
| 2309 | 17/06/2024 | 10:30:00 | male | 6 | Suhaib | 712434435 | Mohul | Jain |
| 3234 | 18/06/2024 | 10:00:00 | male | 8 | trevor | 123534435 | Mark | Chan |
| 3453 | 19/06/2024 | 11:30:00 | male | 4 | Crish | 123734435 | Bovis | Homes |
| 4268 | 20/06/2024 | 10:00:00 | male | 2 | Homes | 123344535 | Sam | Sung |
| 4309 | 21/06/2024 | 13:30:00 | male | 1 | bovis | 123347435 | Mamtha | Kanumetta |
| 4532 | 22/06/2024 | 12:30:00 | female | 6 | Jennie | 123344435 | Yogesh | Jarugu |
| 4587 | 23/06/2024 | 11:00:00 | male | 4 | David | 512834435 | Akhil | Kanumetta |
| 4862 | 24/06/2024 | 15:00:00 | female | 9 | deepaka | 123346435 | Joe | Li |
| 5494 | 25/06/2024 | 14:30:00 | male | 6 | ganesh | 123344335 | Shivij | Kanoijia |
| 5621 | 25/06/2024 | 12:00:00 | female | 1 | Radhika | 123348435 | Srinivas | Kanumetta |
| 5678 | 25/06/2024 | 13:30:00 | female | 3 | Radhika | 123334435 | Yat Sing | Fong |
| 6543 | 25/06/2024 | 14:30:00 | female | 4 | Radhika | 123347435 | Pranav | Nethi |
| 6547 | 26/06/2024 | 10:00:00 | male | 5 | Akhil | 123341435 | Indeever | Nethi |
| 9090 | 27/06/2024 | 14:00:00 | female | 7 | deepa | 123348435 | han | Li |
| 9093 | 28/06/2024 | 15:45:00 | male | 9 | Asil | 123344535 | Au Man | Qu |