MIT World Peace University

Data Base Management System

Assignment 3

Naman Soni Roll No. 10
Sayyam Saboo Roll No. 30

Contents

1 Introduction

Hospital management system is a digital platform that enables hospitals to manage their administrative and clinical workflows efficiently. The aim of this project is to design and develop a hospital management system using the Python programming language and MySql.

2 Problem Statement

Traditional hospital management systems are often inefficient and time-consuming, leading to delays and errors in patient care. The hospital management system aims to solve these problems by digitizing administrative and clinical workflows, providing real-time access to patient information, and automating processes.

3 Objective

The objectives of the project are:

- To create a digital platform for managing administrative and clinical workflows in hospitals.
- To provide real-time access to patient information to hospital staff.
- To automate processes to reduce delays and errors in patient care.
- To ensure data security and privacy.

4 System Implementation

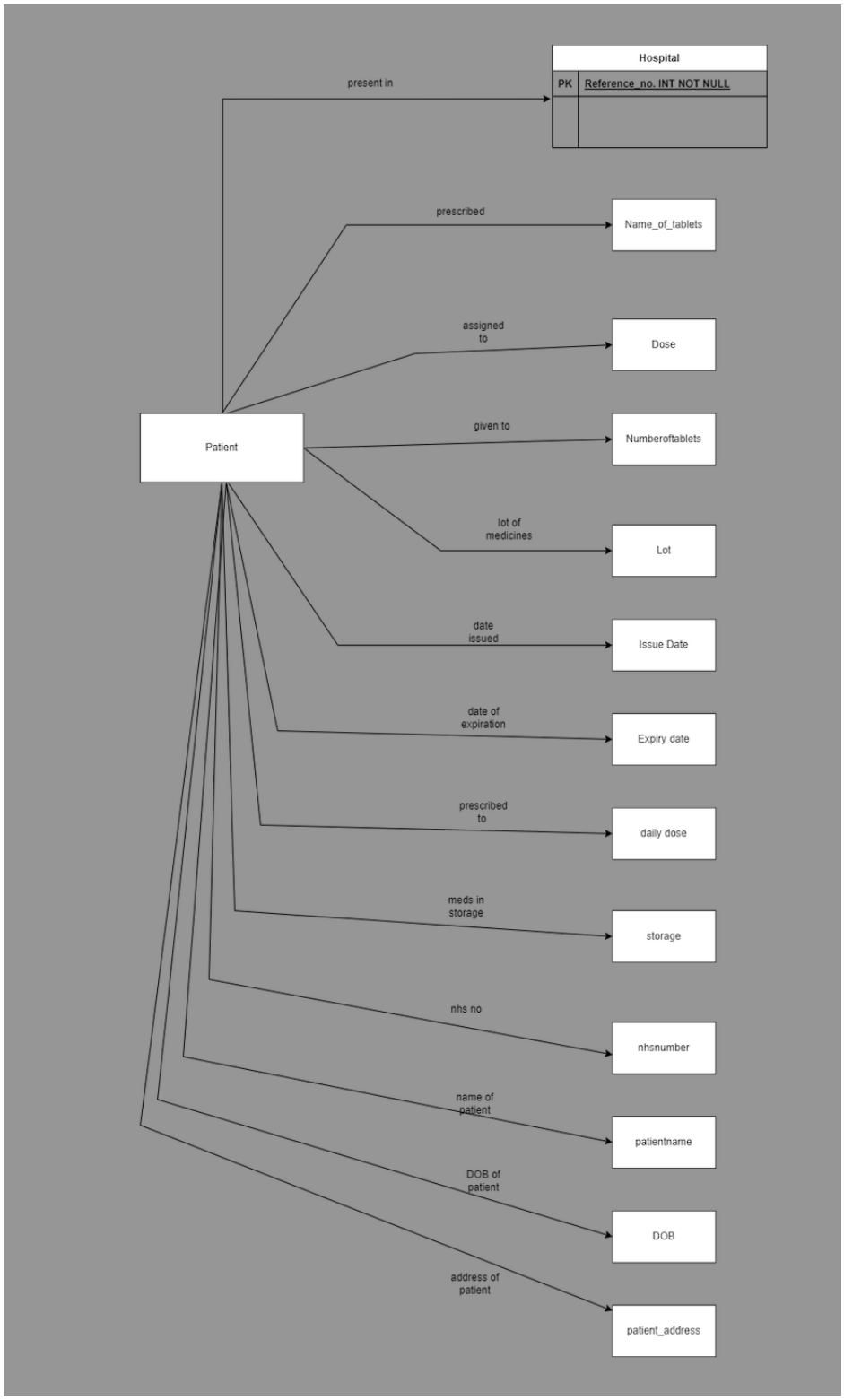
The hospital management system is implemented using the Python programming language. The following technologies are used in the implementation:

- MySQL This is a database management system that is used to store the hospital data. The implementation details include creating the database schema, creating the Django models, views, and templates, and integrating the system with the database.

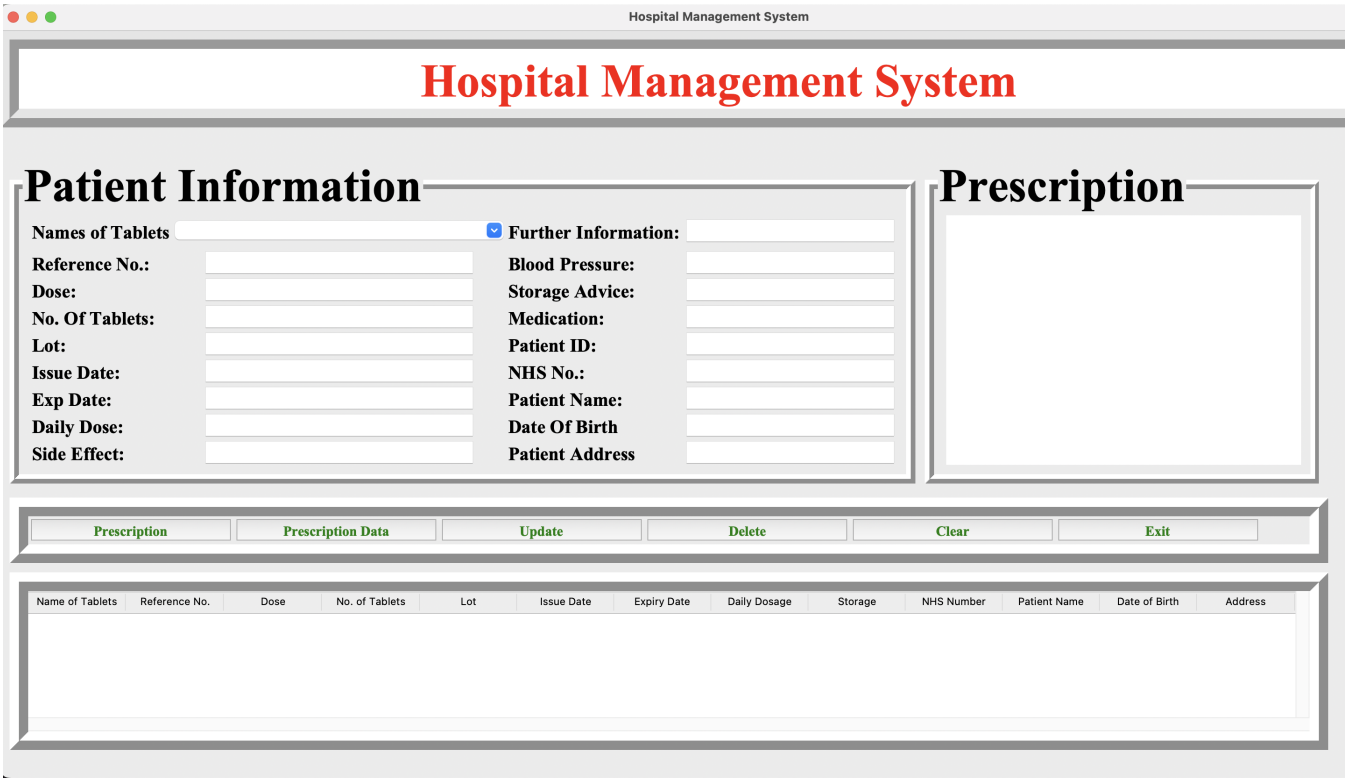
5 Normalization

The table in the project is in 1NF.

6 ER Diagram


Hospital
PK
Reference_no. INT NOT NULL
present in
prescribed
Name_of_tablets
assigned to
Dose
Patient
given to
Numberoftablets
lot of medicines
Lot
date issued
Issue Date
date of expiration
Expiry date
prescribed to
daily dose
meds in storage
storage
nhs no
nhsnumber
name of patient
patientname
DOB of patient
DOB
address of patient
patient_address

7 User Interface



8 Code

```
from tkinter import *
from tkinter import ttk
import random
import time
import datetime
from tkinter import messagebox
import mysql.connector


class Hospital:
  def __init__(self, root):
    self.root = root
    self.root.title("Hospital Management System")
    self.root.geometry("1280x720+0+0")
    self.conn = mysql.connector.connect(host="127.0.0.1", username="root", password="
  Sayyam@123", database="mydata")
    self.my_cursor = self.conn.cursor()
    self.Nameoftablets = StringVar()
    self.ref = StringVar()
    self.Dose = StringVar()
    self.NoofTablets = StringVar()
    self.Lot = StringVar()
    self.Issuedate = StringVar()
    self.Expdate = StringVar()
    self.DailyDose = StringVar()
    self.sideEffect = StringVar()
    self.FurtherInformation = StringVar()
    self.BloodP = StringVar()
    self.StorageAdvice = StringVar()
```

```
        self.DrivingUsingMachine = StringVar()
        self.HowtoUseMedications = StringVar()
        self.PatientId = StringVar()
        self.nhsNumber = StringVar()
        self.PatientName = StringVar()
        self.DateOfBirth = StringVar()
        self.PatientAddress = StringVar()


        lbltitle = Label(self.root, bd=20, relief=RIDGE, text="Hospital Management System",fg="red", bg="white", font=("Times New Roman", 40, "bold"))
        lbltitle.pack(side=TOP, fill=X)

        # ========================DataFrame=======================
        Dataframe = Frame(self.root, bd=20, relief=RIDGE)
        Dataframe.place(x=0, y=110, width=1280, height=348)


        dataframeLeft = LabelFrame(Dataframe, bd=8, relief=RIDGE, padx=8,
                                   font=("arial", 11, "bold"), text="Patient Information")
        dataframeLeft.place(x=10, y=3, width=850, height=300)

        dataframeRight = LabelFrame(Dataframe, bd=8, relief=RIDGE, padx=8,
                                    font=("arial", 11, "bold"), text="Prescription")
        dataframeRight.place(x=865, y=3, width=350, height=300)

        # ========================Buttons Frame=======================


        ButtonFrame = Frame(self.root, bd=16, relief=RIDGE)
        ButtonFrame.place(x=0, y=460, width=1280, height=58)


        # ========================Details Frame=======================

        DetailsFrame = Frame(self.root, bd=16, relief=RIDGE)
        DetailsFrame.place(x=0, y=520, width=1280, height=165)

    # ========================dataframeLeft=======================

        lblNameTablet = Label(dataframeLeft, text="Names of Tablets",
                              font=("arial", 11, "bold"), padx=1, pady=4)
        lblNameTablet.grid(row=0, column=0)

        comNameTablet = ttk.Combobox(dataframeLeft, textvariable=self.Nameoftablets, state="readonly",
                                     font=("arial", 11, "bold"),
                                     width=33)
        comNameTablet["values"] = (
            "Dolo 350", "Paracetamol", "Aspirin", "Crocin", "Monter LC", "Neprocin")
        comNameTablet.grid(row=0, column=1)

        lblref = Label(dataframeLeft, font=("arial", 11, "bold"),
                       text="Reference No.:", padx=1)
        lblref.grid(row=1, column=0, sticky=W)
        textref = Entry(dataframeLeft, font=(
            "arial", 11, "bold"), textvariable=self.ref, width=33)
        textref.grid(row=1, column=1)

        lbldose = Label(dataframeLeft, font=("arial", 11, "bold"),
                        text="Dose:", padx=1)
        lbldose.grid(row=2, column=0, sticky=W)
        textdose = Entry(dataframeLeft, font=(
            "arial", 11, "bold"), textvariable=self.Dose, width=33)
        textdose.grid(row=2, column=1)

        lblNoOfTablets = Label(dataframeLeft, font=("arial", 11, "bold"),
                               text="No. Of Tablets:", padx=1)
```

```
        lblNoOfTablets.grid(row=3, column=0, sticky=W)
        textNoOfTablets = Entry(dataframeLeft, font=(
          "arial", 11, "bold"), textvariable=self.NoofTablets, width=33)
        textNoOfTablets.grid(row=3, column=1)

        lblLot = Label(dataframeLeft, font=("arial", 11, "bold"),
                 text="Lot:", padx=1)
        lblLot.grid(row=4, column=0, sticky=W)
        textLot = Entry(dataframeLeft, font=(
          "arial", 11, "bold"), textvariable=self.Lot, width=33)
        textLot.grid(row=4, column=1)

        lblissuedate = Label(dataframeLeft, font=("arial", 11, "bold"),
                    text="Issue Date:", padx=1)
        lblissuedate.grid(row=5, column=0, sticky=W)
        textissuedate = Entry(dataframeLeft, font=(
          "arial", 11, "bold"), textvariable=self.Issuedate, width=33)
        textissuedate.grid(row=5, column=1)

        lblexpirydate = Label(dataframeLeft, font=("arial", 11, "bold"),
                    text="Exp Date:", padx=1)
        lblexpirydate.grid(row=6, column=0, sticky=W)
        textexpirydate = Entry(dataframeLeft, font=(
          "arial", 11, "bold"), textvariable=self.Expdate, width=33)
        textexpirydate.grid(row=6, column=1)

        lbldailydose = Label(dataframeLeft, font=("arial", 11, "bold"),
                    text="Daily Dose:", padx=1)
        lbldailydose.grid(row=7, column=0, sticky=W)
        textdailydose = Entry(dataframeLeft, font=(
          "arial", 11, "bold"), textvariable=self.DailyDose, width=33)
        textdailydose.grid(row=7, column=1)

        lblsideeffect = Label(dataframeLeft, font=("arial", 11, "bold"),
                    text="Side Effect:", padx=1)
        lblsideeffect.grid(row=8, column=0, sticky=W)
        textsideeffect = Entry(dataframeLeft, font=(
          "arial", 11, "bold"), textvariable=self.sideEffect, width=33)
        textsideeffect.grid(row=8, column=1)

        lblfurtherinfo = Label(dataframeLeft, font=("arial", 11, "bold"),
                     text="Further Information:", padx=1)
        lblfurtherinfo.grid(row=0, column=3, sticky=W)
        textfurtherinfo = Entry(dataframeLeft, font=(
          "arial", 11, "bold"), textvariable=self.FurtherInformation, width=25)
        textfurtherinfo.grid(row=0, column=4)

        lblbloodp = Label(dataframeLeft, font=("arial", 11, "bold"),
                  text="Blood Pressure:", padx=1)
        lblbloodp.grid(row=1, column=3, sticky=W)
        textbloodp = Entry(dataframeLeft, font=(
          "arial", 11, "bold"), textvariable=self.BloodP, width=25)
        textbloodp.grid(row=1, column=4)

        lblstorageadvice = Label(dataframeLeft, font=("arial", 11, "bold"),
                     text="Storage Advice:", padx=1)
        lblstorageadvice.grid(row=2, column=3, sticky=W)
        textstorageadvice = Entry(dataframeLeft, font=(
          "arial", 11, "bold"), textvariable=self.StorageAdvice, width=25)
        textstorageadvice.grid(row=2, column=4)

        lblmedication = Label(dataframeLeft, font=("arial", 11, "bold"),
                    text="Medication:", padx=1)
        lblmedication.grid(row=3, column=3, sticky=W)
        textmedication = Entry(dataframeLeft, font=(
          "arial", 11, "bold"), textvariable=self.HowtoUseMedications, width=25)
        textmedication.grid(row=3, column=4)

```

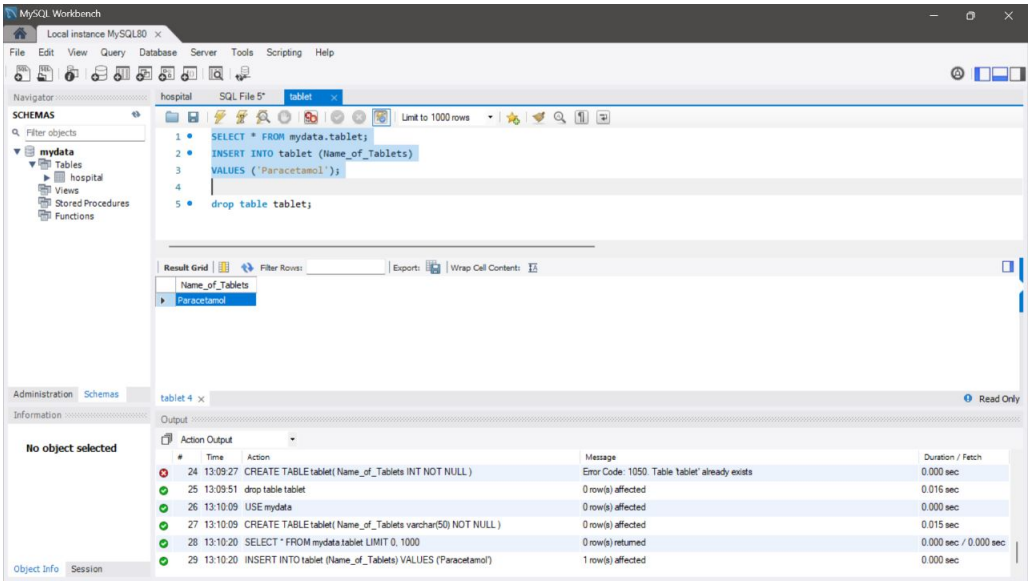
```
    lblpatientid = Label(dataframeLeft, font=("arial", 11, "bold"),
                text="Patient ID:", padx=1)
    lblpatientid.grid(row=4, column=3, sticky=W)
    textpatientid = Entry(dataframeLeft, font=(
      "arial", 11, "bold"), textvariable=self.PatientId, width=25)
    textpatientid.grid(row=4, column=4)

    lblNHSno = Label(dataframeLeft, font=("arial", 11, "bold"),
             text="NHS No.:", padx=1)
    lblNHSno.grid(row=5, column=3, sticky=W)
    textNHSno = Entry(dataframeLeft, font=(
      "arial", 11, "bold"), textvariable=self.nhsNumber, width=25)
    textNHSno.grid(row=5, column=4)

    lblpatientname = Label(dataframeLeft, font=("arial", 11, "bold"),
                  text="Patient Name:", padx=1)
    lblpatientname.grid(row=6, column=3, sticky=W)
    textpatientname = Entry(dataframeLeft, font=(
      "arial", 11, "bold"), textvariable=self.PatientName, width=25)
    textpatientname.grid(row=6, column=4)

    lbldob = Label(dataframeLeft, font=("arial", 11, "bold"),
             text="Date Of Birth", padx=1)
    lbldob.grid(row=7, column=3, sticky=W)
    textdob = Entry(dataframeLeft, font=(
      "arial", 11, "bold"), textvariable=self.DateOfBirth, width=25)
    textdob.grid(row=7, column=4)

    lblpatientadd = Label(dataframeLeft, font=("arial", 11, "bold"),
                text="Patient Address", padx=1)
    lblpatientadd.grid(row=8, column=3, sticky=W)
    textpatientadd = Entry(dataframeLeft, font=(
      "arial", 11, "bold"), textvariable=self.PatientAddress, width=25)
    textpatientadd.grid(row=8, column=4)

   # ========================dataframeRight=======================

    self.textPrescription = Text(dataframeRight, font=(
      "arial", 10, "bold"), width=45, height=15, padx=2.25, pady=6)
    self.textPrescription.grid(row=0, column=0)

   # ========================Buttons=======================

    btnPrescription = Button(ButtonFrame, text="Prescription", fg="white", bg="green",
  font=(
      "arial", 10, "bold"), width=25)
    btnPrescription.grid(row=0, column=0)

    btnPrescriptiondata = Button(ButtonFrame, text="Prescription Data", fg="white", bg="
  green", font=(
      "arial", 10, "bold"), width=25, command=self.PrescriptionData)
    btnPrescriptiondata.grid(row=0, column=1)

    btnUpdate = Button(ButtonFrame, text="Update", fg="white", bg="green", font=(
      "arial", 10, "bold"), width=25)
    btnUpdate.grid(row=0, column=2)

    btnDelete = Button(ButtonFrame, text="Delete", fg="white", bg="green", font=(
      "arial", 10, "bold"), width=25)
    btnDelete.grid(row=0, column=3)

    btnClear = Button(ButtonFrame, text="Clear", fg="white", bg="green", font=(
      "arial", 10, "bold"), width=25)
    btnClear.grid(row=0, column=4)

    btnExit = Button(ButtonFrame, text="Exit", fg="white", bg="green", font=(
      "arial", 10, "bold"), width=23)
    btnExit.grid(row=0, column=5)
```

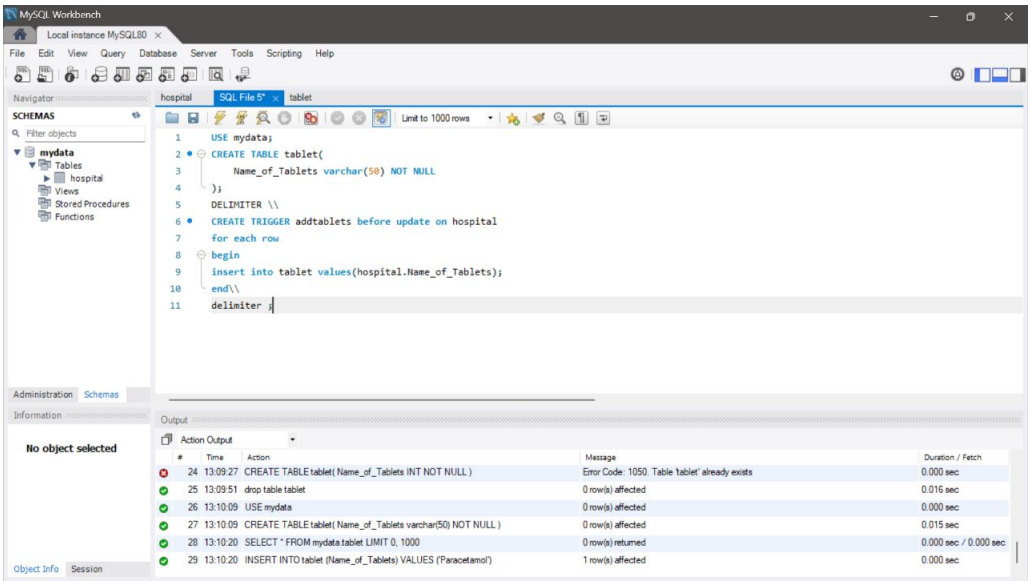
```
229
230       # ========================Table============================
231       # ========================Scrollbar========================
232       scroll_x = ttk.Scrollbar(DetailsFrame, orient=HORIZONTAL)
233       scroll_y = ttk.Scrollbar(DetailsFrame, orient=VERTICAL)
234       self.hospital_table = ttk.Treeview(DetailsFrame, columns=(
235         "nameoftable", "ref", "dose", "nooftablets", "lot", "issuedate", "expdate",
236         "dailydose", "storage", "nhsnumber", "pname", "dob", "address"), xscrollcommand=
    scroll_y.set,
237         yscrollcommand=scroll_x.set)
238       scroll_x.pack(side=BOTTOM, fill=X)
239       scroll_y.pack(side=RIGHT, fill=Y)
240
241       scroll_x = ttk.Scrollbar(command=self.hospital_table.xview)
242       scroll_y = ttk.Scrollbar(command=self.hospital_table.yview)
243
244       self.hospital_table.heading("nameoftable", text="Name of Tablets")
245       self.hospital_table.heading("ref", text="Reference No.")
246       self.hospital_table.heading("dose", text="Dose")
247       self.hospital_table.heading("nooftablets", text="No. of Tablets")
248       self.hospital_table.heading("lot", text="Lot")
249       self.hospital_table.heading("issuedate", text="Issue Date")
250       self.hospital_table.heading("expdate", text="Expiry Date")
251       self.hospital_table.heading("dailydose", text="Daily Dosage")
252       self.hospital_table.heading("storage", text="Storage")
253       self.hospital_table.heading("nhsnumber", text="NHS Number")
254       self.hospital_table.heading("pname", text="Patient Name")
255       self.hospital_table.heading("dob", text="Date of Birth")
256       self.hospital_table.heading("address", text="Address")
257
258       self.hospital_table["show"] = "headings"
259
260       self.hospital_table.pack(fill=BOTH, expand=1)
261
262       self.hospital_table.column("nameoftable", width=90)
263       self.hospital_table.column("ref", width=90)
264       self.hospital_table.column("dose", width=90)
265       self.hospital_table.column("nooftablets", width=90)
266       self.hospital_table.column("lot", width=90)
267       self.hospital_table.column("issuedate", width=90)
268       self.hospital_table.column("expdate", width=90)
269       self.hospital_table.column("dailydose", width=90)
270       self.hospital_table.column("storage", width=90)
271       self.hospital_table.column("nhsnumber", width=90)
272       self.hospital_table.column("pname", width=90)
273       self.hospital_table.column("dob", width=90)
274       self.hospital_table.column("address", width=90)
275     def PrescriptionData(self):
276       if self.Nameoftablets.get() == "":
277         messagebox.showerror(
278           "Error", "All fields are required to fill")
279       else:
280
281         self.my_cursor.execute("Use mydata")
282         self.my_cursor.execute("insert into hospital values (%s,%s,%s,%s,%s,%s,%s,%s,%s,%s,%
    s, %s, %s)", (
283                   self.Nameoftablets.get(),
284                   self.ref.get(),
285                   self.Dose.get(),
286                   self.NoofTablets.get(),
287                   self.Lot.get(),
288                   self.Issuedate.get(),
289                   self.Expdate.get(),
290                   self.DailyDose.get(),
291                   self.sideEffect.get(),
292                   self.FurtherInformation.get(),
293                   self.StorageAdvice.get(),
294                   self.DrivingUsingMachine.get(),
```

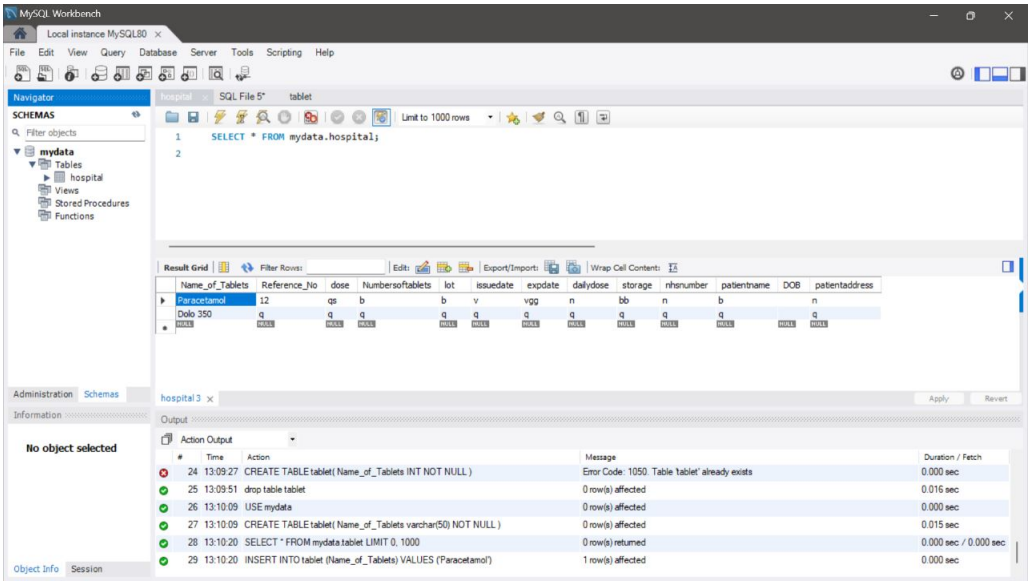
```
                    self.HowtoUseMedications.get(),
                    # self.PatientId.get(),
                    # self.nhsNumber.get(),
                    # self.PatientName.get(),
                    # self.DateOfBirth.get(),
                    # self.PatientAddress.get(),
                    # self.BloodP.get(),
                    ))
        self.conn.commit()
        self.conn.close()
        messagebox.showinfo("Success", "Data has been inserted")

root = Tk()
ob = Hospital(root)
root.mainloop()
```

Listing 1: Hospital Management.py

9 Tables







10 Conclusion

In conclusion, the hospital management system developed using Python is an efficient and effective solution for managing administrative and clinical workflows in hospitals. The use of Python and Django ensures that the system is scalable, secure, and easy to maintain.

11 Future Scope

The hospital management system can be further improved by adding more features, such as electronic medical records, billing and payment systems, and integration with other hospital systems. The system can also be extended to mobile devices, providing real-time access to patient information from anywhere.