Restaurant Management System

A COURSE PROJECT REPORT

By :-

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Under the guidance of

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(Under Section 3 of UGC Act, 1956)

BONAFIDE CERTIFICATE

Certified that this mini project report " **Restaurant Management System**" is the bonafide work of **NIKHIL PATIL [RA2111030010194], VARUN RAMAKRISHNA IYER [RA2111030010218] , SRIJAN MISHRA [RA2111030010204]** who carried out the project work under my supervision.

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1. INTRODUCTION

The restaurant industry is a fast-paced, competitive business that requires efficient and effective management to succeed. Managing a restaurant can be a challenging task, with a myriad of activities that need to be handled with precision to ensure smooth operations. From managing orders and inventory to tracking sales and finances, there are multiple aspects that require careful attention to detail.

The Restaurant Management System is an advanced software solution designed to help restaurants streamline their operations and improve efficiency. This system provides a comprehensive set of features to manage all aspects of the restaurant, from menu management to order processing, billing, inventory management, and reporting.
With the Restaurant Management System, restaurant owners can easily manage their business, reduce errors, and improve customer satisfaction. The system automates several manual processes, freeing up staff time to focus on providing high-quality service to customers.

This project aims to develop a fully functional Restaurant Management System that will provide an intuitive, user-friendly interface for both restaurant staff and customers. The system will help restaurant owners to manage their business more effectively, reduce costs, and increase profitability.

This project will involve the use of advanced programming practices and technologies to create a robust and scalable solution that can handle the complex needs of modern restaurants. The project will cover all aspects of the system development lifecycle, from requirements gathering and analysis to design, implementation, testing, deployment, and maintenance.

In summary, the Restaurant Management System project is an exciting opportunity to develop a cutting-edge software solution that can transform the way restaurants manage their operations.

2. OBJECTIVE

The main objective of this project are:

- Develop a user-friendly interface for managing restaurant operations
- Automate manual processes to improve efficiency and reduce errors
- Provide a comprehensive set of features for managing restaurant operations
- Ensure secure storage and processing of sensitive information
- Provide real-time insights into restaurant performance through reporting and analytics
- Ensure compatibility with a wide range of devices
- Ensure scalability and flexibility
- Improve customer satisfaction through improved order accuracy and personalized service.

3. PURPOSE

- The purpose of this project is to develop a software solution that can help restaurants improve their operations, reduce costs, and increase profitability.
- The system will automate manual processes, provide real-time insights into restaurant performance, ensure secure storage and processing of sensitive information, improve customer satisfaction, and be compatible with a wide range of devices.
- The system will be scalable and flexible, allowing it to adapt to the changing needs of the restaurant over time.

4. KEY FEATURES

1. Billing and Invoicing: A feature to generate bills and invoices for customers, including the details of the items ordered, taxes, and any discounts applied.

2. Payment Processing: A feature to process payments securely and efficiently, including cash, credit/debit cards, and digital payment methods such as e-wallets.

3. Discounts and Coupons: A feature to apply discounts and coupons to the bills automatically or manually, based on certain criteria such as customer type or order size.

4. Tax Management: A feature to calculate taxes accurately and automatically, based on the tax rules of the location where the restaurant is located.

5. Refunds and Cancellations: A feature to manage refunds and cancellations for any payment transaction, either fully or partially.

6. Integration with Accounting Software: A feature to integrate the billing data with accounting software for easier bookkeeping and financial reporting.

These features will provide a seamless and efficient billing process for customers, while also simplifying the payment collection and financial management for the restaurant.

5. TECHNOLOGIES USED

1. Python: You can use Python as the primary programming language for developing the application logic and user interface. Python is a popular and versatile language that is widely used for developing web applications, desktop applications, and other software projects.

2. SQLite: SQLite is a lightweight, serverless SQL database engine that can be used for small-scale applications such as a Restaurant Management System. SQLite is easy to use and does not require a separate database server or setup, making it an ideal choice for simple applications.

HTML/CSS: You can use HTML and CSS for developing the web pages and user interface for the Restaurant Management System. HTML is used for creating the structure of web pages, while CSS is used for styling and layout.

5. CODE

```
from tkinter import *
from tkinter import filedialog,messagebox
import random
import time
import sqlite3

root=Tk()

root.geometry('1270x690+0+0')

root.resizable(0,0)

root.title('Project By:- Nikhil (194) And Varun (128)')

root.config(bg='firebrick4')

topFrame=Frame(root,bd=10,relief=RIDGE,bg='firebrick4')
topFrame.pack(side=TOP)

labelTitle=Label(topFrame,text='Restaurant Management
System',font=('arial',30,'bold'),fg='yellow',bd=9,
            bg='firebrick4',width=51)
labelTitle.grid(row=0,column=0)

#Sql database

'''conn = sqlite3.connect('card.s3db')
cur = conn.cursor()
conn.commit()
card_table = """ CREATE TABLE IF NOT EXISTS card (
                                    id INTEGER,
                                    number TEXT,
                                    pin TEXT,
                                    balance INTEGER DEFAULT 0
)"""

cur.execute(card_table)
conn.commit()'''

def receipt():
   global billnumber,date
   if costoffoodvar.get() != '' or costofcakesvar.get() != '' or costofdrinksvar.get() != '':
      textReceipt.delete(1.0,END)
      x=random.randint(100,10000)
```

```
    billnumber='BILL'+str(x)
    date=time.strftime('%d/%m/%Y')
    textReceipt.insert(END,'Receipt Ref:\t\t'+billnumber+'\t\t'+date+'\n')
    textReceipt.insert(END,'**********************************************************
********\n')
    textReceipt.insert(END,'Items:\t\t Cost Of Items(Rs)\n')
    textReceipt.insert(END,'**********************************************************
********\n')
    if e_roti.get()!='0':
        textReceipt.insert(END,f'Roti\t\t\t{int(e_roti.get())*10}\n\n')

    if e_daal.get()!='0':
        textReceipt.insert(END,f'Daal\t\t\t{int(e_daal.get())*60}\n\n')

    if e_fish.get()!='0':
        textReceipt.insert(END,f'Fish\t\t\t{int(e_fish.get())*100}\n\n')

    if e_chawal.get() != '0':
        textReceipt.insert(END, f'Chawal:\t\t\t{int(e_chawal.get()) * 30}\n\n')

    if e_sabji.get() != '0':
        textReceipt.insert(END, f'Sabji:\t\t\t{int(e_sabji.get()) * 50}\n\n')

    if e_paneer.get() != '0':
        textReceipt.insert(END, f'Paneer:\t\t\t{int(e_paneer.get()) * 100}\n\n')

        textReceipt.insert(END,'**********************************************************
**********\n')
    if costoffoodvar.get()!='0 Rs':
        textReceipt.insert(END,f'Cost Of Food\t\t\t{priceofFood}Rs\n\n')
    if costofdrinksvar.get() != '0 Rs':
        textReceipt.insert(END,f'Cost Of Drinks\t\t\t{priceofDrinks}Rs\n\n')
    if costofcakesvar.get() != '0 Rs':
        textReceipt.insert(END,f'Cost Of Cakes\t\t\t{priceofCakes}Rs\n\n')

    textReceipt.insert(END, f'Sub Total\t\t\t{subtotalofItems}Rs\n\n')
    textReceipt.insert(END, f'Service Tax\t\t\t{50}Rs\n\n')
    textReceipt.insert(END, f'Total Cost\t\t\t{subtotalofItems+50}Rs\n\n')
    textReceipt.insert(END,'**********************************************************
********\n')

  else:
    messagebox.showerror('Error','No Item Is selected')


def totalcost():
  global priceofFood,priceofDrinks,priceofCakes,subtotalofItems
  if var1.get() != 0 or var2.get() != 0 or var3.get() != 0 or var4.get() != 0 or var5.get() != 0 or \
    var6.get() != 0 or var7.get() != 0 or var8.get() != 0 or var9.get() != 0 or var10.get() != 0 or\
```

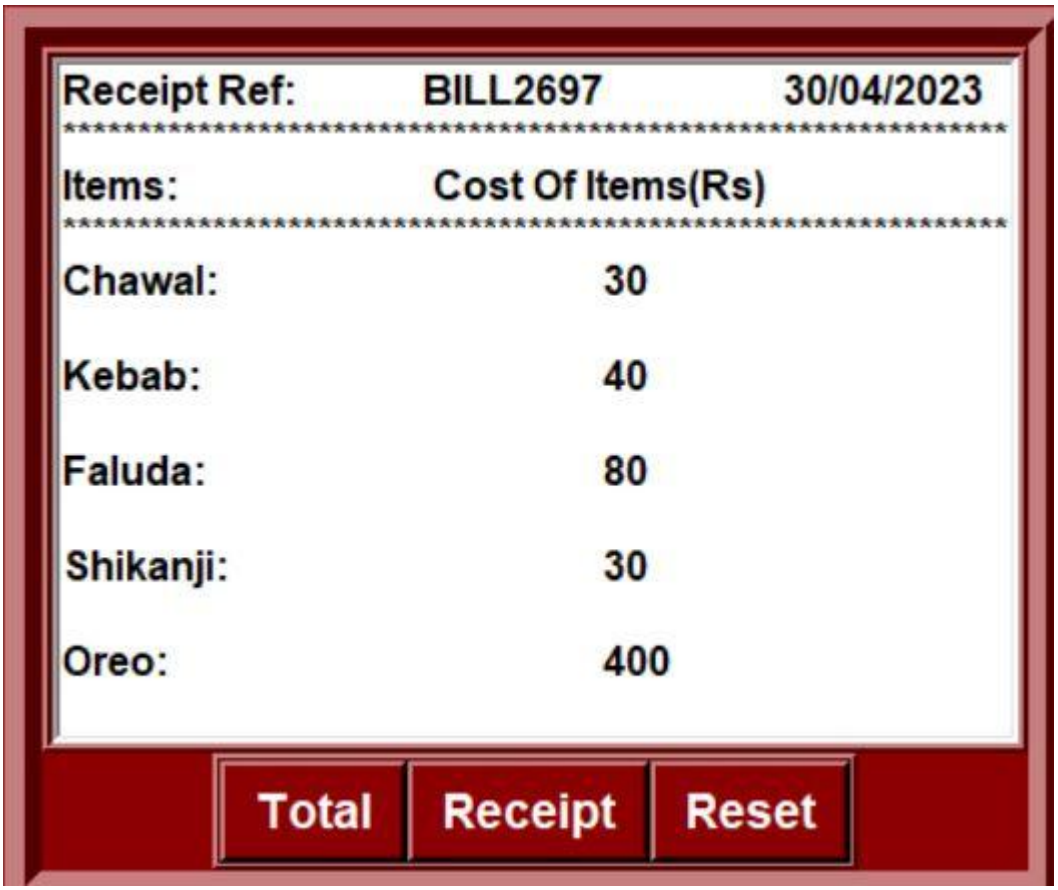
```
    var11.get() != 0 or var12.get() != 0 or var13.get() != 0 or var14.get() != 0 or var15.get() != 0
or \
    var16.get() != 0 or var17.get() != 0 or var18.get() != 0 or var19.get() != 0 or var20.get() != 0
or \
    var21.get() != 0 or var22.get() != 0 or var23.get() != 0 or var24.get() != 0 or var25.get() != 0
or\
    var26.get() != 0 or var27.get() != 0:

    item1=int(e_roti.get())
    item2=int(e_daal.get())
    item3=int(e_fish.get())
    item4 = int(e_sabji.get())
    item5 = int(e_kebab.get())
    item6 = int(e_chawal.get())
    item7 = int(e_mutton.get())
    priceofFood=(item1*10)+(item2*60)+(item3*100)+(item4*50)+ (item5*40) + (item6 * 30) +
(item7 * 120) \
            + (item8 * 100) + (item9 * 120)

    priceofDrinks=(item10*50)+(item11*40)+ (item12 * 80) + (item13 * 30) + (item14 * 40) +
(item15 * 60) \
             + (item16 * 20) + (item17 * 50) + (item18 * 80)

    priceofCakes=(item19*400)+(item20*300)+ (item21 * 500) + (item22 * 550) + (item23 * 450)
+ (item24 * 800) \
            + (item25 * 620) + (item26 * 700) + (item27 * 550)

    costoffoodvar.set(str(priceofFood)+ ' Rs')
    costofdrinksvar.set(str(priceofDrinks)+ ' Rs')
    costofcakesvar.set(str(priceofCakes)+ ' Rs')

    subtotalofItems=priceofFood+priceofDrinks+priceofCakes
    subtotalvar.set(str(subtotalofItems)+' Rs')

    servicetaxvar.set('50 Rs')

    tottalcost=subtotalofItems+50
    totalcostvar.set(str(tottalcost)+' Rs')

  else:
    messagebox.showerror('Error','No Item Is selected')


def roti():
  if var1.get()==1:
    textroti.config(state=NORMAL)
    textroti.delete(0,END)
    textroti.focus()
  else:
```

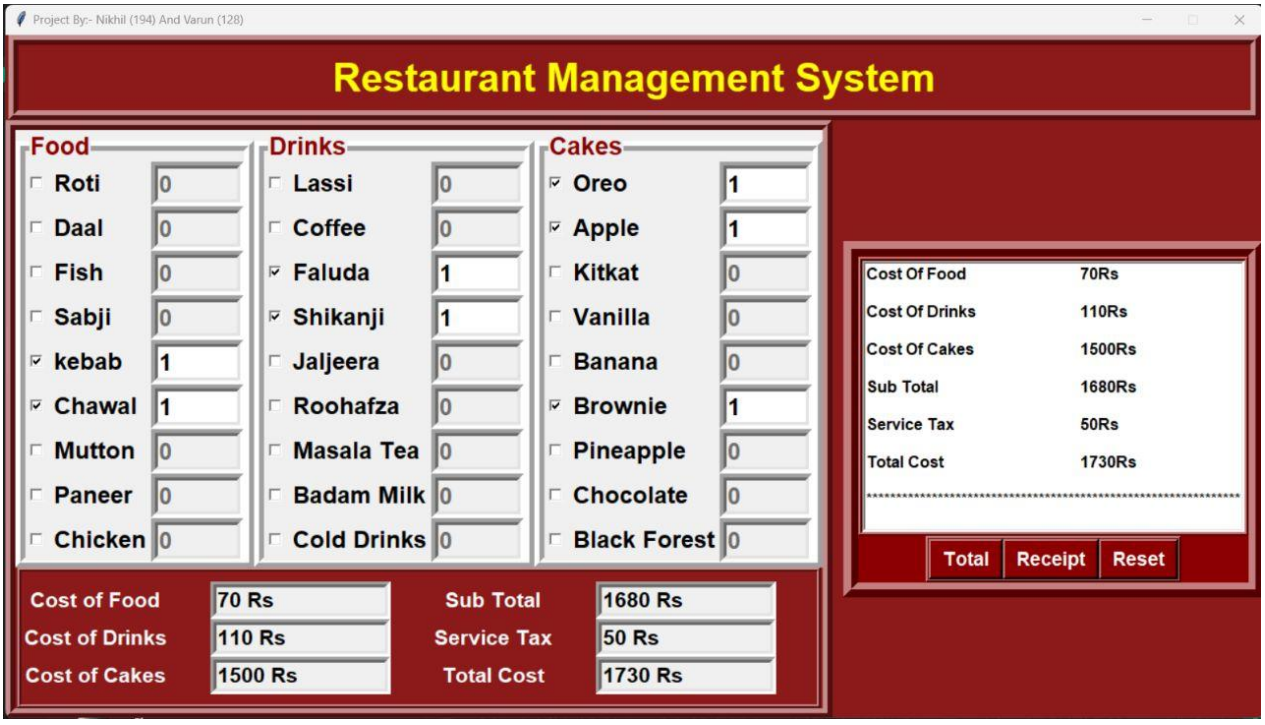
```
        textroti.config(state=DISABLED)
        e_roti.set('0')

def daal():
    if var2.get()==1:
        textdaal.config(state=NORMAL)
        textdaal.delete(0,END)
        textdaal.focus()

    else:
        textdaal.config(state=DISABLED)
        e_daal.set('0')

def fish():
    if var3.get()==1:
        textfish.config(state=NORMAL)
        textfish.delete(0,END)
        textfish.focus()

    else:
        textfish.config(state=DISABLED)
        e_fish.set('0')

def sabji():
    if var4.get() == 1:
        textsabji.config(state=NORMAL)
        textsabji.focus()
        textsabji.delete(0, END)
    elif var4.get() == 0:
        textsabji.config(state=DISABLED)
        e_sabji.set('0')

def kebab():
    if var5.get() == 1:
        textkebab.config(state=NORMAL)
        textkebab.focus()
        textkebab.delete(0, END)
    elif var5.get() == 0:
        textkebab.config(state=DISABLED)
        e_kebab.set('0')

#frames

menuFrame=Frame(root,bd=10,relief=RIDGE,bg='firebrick4')
menuFrame.pack(side=LEFT)

costFrame=Frame(menuFrame,bd=4,relief=RIDGE,bg='firebrick4',pady=10)
costFrame.pack(side=BOTTOM)
```

```
foodFrame=LabelFrame(menuFrame,text='Food',font=('arial',19,'bold'),bd=10,relief=RIDGE,fg='r
ed4',)
foodFrame.pack(side=LEFT)

drinksFrame=LabelFrame(menuFrame,text='Drinks',font=('arial',19,'bold'),bd=10,relief=RIDGE,fg
='red4')
drinksFrame.pack(side=LEFT)

cakesFrame=LabelFrame(menuFrame,text='Cakes',font=('arial',19,'bold'),bd=10,relief=RIDGE,fg=
'red4')
cakesFrame.pack(side=LEFT)

rightFrame=Frame(root,bd=15,relief=RIDGE,bg='red4')
rightFrame.pack(side=RIGHT)

calculatorFrame=Frame(rightFrame,bd=1,relief=RIDGE,bg='red4')
calculatorFrame.pack()

recieptFrame=Frame(rightFrame,bd=4,relief=RIDGE,bg='red4')
recieptFrame.pack()

buttonFrame=Frame(rightFrame,bd=3,relief=RIDGE,bg='red4')
buttonFrame.pack()
#costlabels & entry fields

labelCostofFood=Label(costFrame,text='Cost of
Food',font=('arial',16,'bold'),bg='firebrick4',fg='white')
labelCostofFood.grid(row=0,column=0)

textCostofFood=Entry(costFrame,font=('arial',16,'bold'),bd=6,width=14,state='readonly',textvari
able=costoffoodvar)
textCostofFood.grid(row=0,column=1,padx=41)

labelCostofDrinks=Label(costFrame,text='Cost of
Drinks',font=('arial',16,'bold'),bg='firebrick4',fg='white')
labelCostofDrinks.grid(row=1,column=0)

textTotalCost=Entry(costFrame,font=('arial',16,'bold'),bd=6,width=14,state='readonly',textvariab
le=totalcostvar)
textTotalCost.grid(row=2,column=3,padx=41)

#Buttons

buttonTotal=Button(buttonFrame,text='Total',font=('arial',14,'bold'),fg='white',bg='red4',bd=3,p
adx=5,
                command=totalcost)
buttonTotal.grid(row=0,column=0)

buttonReceipt=Button(buttonFrame,text='Receipt',font=('arial',14,'bold'),fg='white',bg='red4',bd
```

```
=3,padx=5
                ,command=receipt)
buttonReceipt.grid(row=0,column=1)

buttonReset=Button(buttonFrame,text='Reset',font=('arial',14,'bold'),fg='white',bg='red4',bd=3,
padx=5,
              command=reset)
buttonReset.grid(row=0,column=4)

#textarea for receipt

textReceipt=Text(recieptFrame,font=('arial',12,'bold'),bd=3,width=42,height=14)
textReceipt.grid(row=0,column=0)

root.mainloop()
```

7. WORKING/OUTPUT


Receipt Ref: BILL2697 30/04/2023
Items: Cost Of Items(Rs)
Chawal: 30
Kebab: 40
Faluda: 80
Shikanji: 30
Oreo: 400
Total
Receipt
Reset


Project By:- Nikhil (194) And Varun (128)
Restaurant Management System
Food
Roti 0
Daal 0
Fish 0
Sabji 0
kebab 1
Chawal 1
Mutton 0
Paneer 0
Chicken 0
Drinks
Lassi 0
Coffee 0
Faluda 1
Shikanji 1
Jaljeera 0
Roohafza 0
Masala Tea 0
Badam Milk 0
Cold Drinks 0
Cakes
Oreo 1
Apple 1
Kitkat 0
Vanilla 0
Banana 0
Brownie 1
Pineapple 0
Chocolate 0
Black Forest 0
Cost of Food 70 Rs
Cost of Drinks 110 Rs
Cost of Cakes 1500 Rs
Sub Total 1680 Rs
Service Tax 50 Rs
Total Cost 1730 Rs
Cost Of Food 70Rs
Cost Of Drinks 110Rs
Cost Of Cakes 1500Rs
Sub Total 1680Rs
Service Tax 50Rs
Total Cost 1730Rs
Total
Receipt
Reset

8. SUMMARY

The Restaurant Management System project aims to develop a software solution that can help restaurants automate their operations, reduce costs, and increase profitability.
The system will provide features such as menu management, order management, billing and payment processing, inventory management, reporting and analytics, table management, customer management, staff management, vendor management, mobile app, and loyalty program.

The billing process will include features such as billing and invoicing, payment processing, split bills, discounts and coupons, tax management, refunds and cancellations, and integration with accounting software. The project will use technologies such as Python, SQLite, SQLAlchemy, HTML/CSS, and JavaScript,etc.

Overall, the Restaurant Management System project will provide a comprehensive set of tools for managing all aspects of a restaurant's operations, improving efficiency, reducing errors, and enhancing the customer experience.

9.REFERENCES

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4."Restaurant Management System" by N. S. Srinath, S. Shashank, and K. V. Raghavendra Rao, International Journal of Engineering and Technology, Vol. 7, Issue 3.1, April 2018.

5."Restaurant Management System" by S. S. Bhalerao, N. M. Pawar, and R. B. Pawar, International Journal of Innovative Technology and Exploring Engineering, Vol. 8, Issue 4S, January 2019.

These references provide insights into the design, implementation, and features of Restaurant Management Systems, as well as the technologies and tools that can be used to develop such systems.