



CUFE

RETAIL STORE SYSTEM

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Presented to

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 **Basic Eng. Design**

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MAIN PROBLEM

In Egypt one of the most populated cities in the world and in the eastern region there is a huge demand on grocery and retail stores, in which millions of people buy and sell products daily .

After a market research we have concluded that retail stores teller systems are :



PROJECT AIM



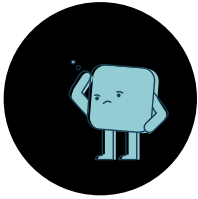
Our main goal is to Create :

- **Simple**
- **Cheap to Buy and Use**
- **User Friendly**

System that will be able to organize and keep record of all the retail store transactions and also play a main role in marketing and advertisement



RETAIL STORES PROBLEMS



Problem-No. 01

Incredibly complicated (requires a professional)



Problem-No. 02

Requires weakly updates to fix bugs and issues



Problem-No. 03

Very expensive to purchase



Problem-No. 04

Requires expensive hardware to run on



Problem-No. 05

Doesn't have much features



Problem-No. 06

Doesn't collect enough data



Problem-No. 07

Can't reach to customers



Problem-No. 08

Not connected to the internet

DATA GATHERING AND ANALYSIS

Statistics carried on Jun 27, 2019 Calculating Countries Retail store Economical size

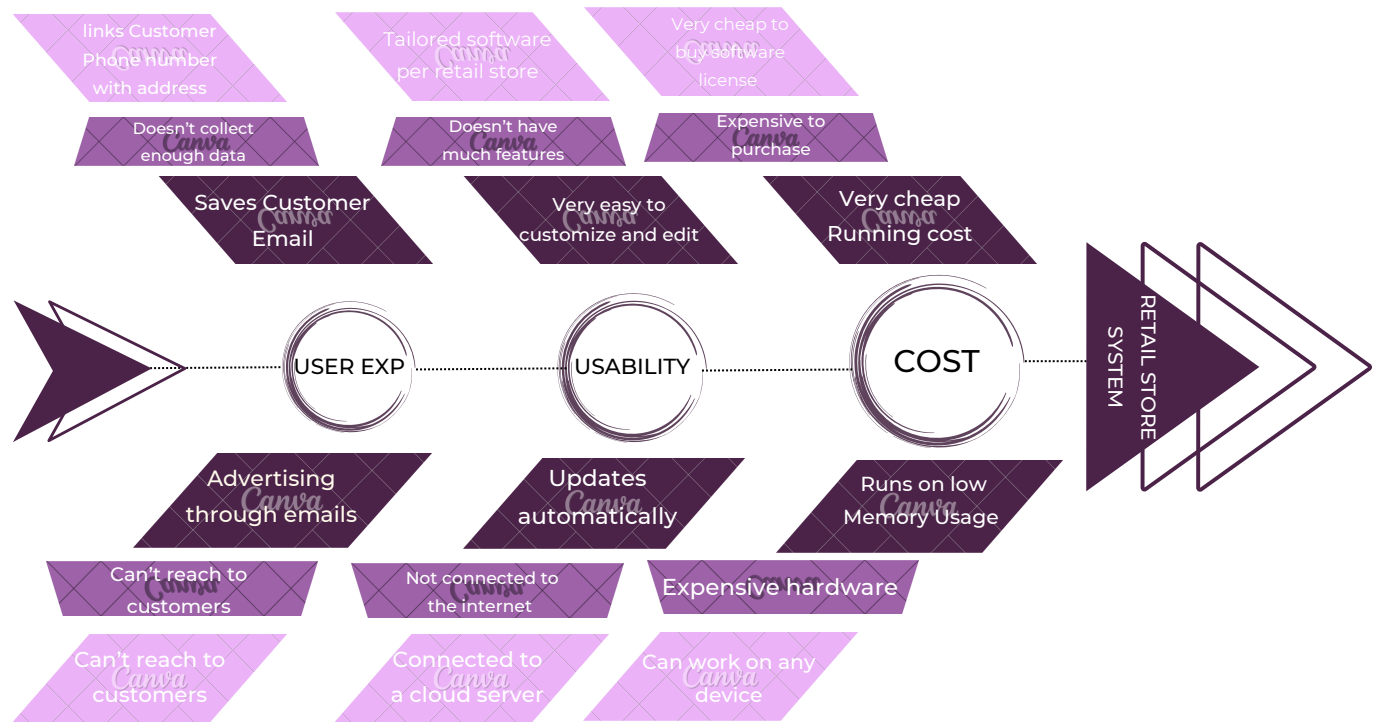
2021 rank	Country	Population (million)	GDP PPP per capita (US\$)	National retail sales (US\$ billion)	Market attractiveness	Country risk	Market saturation	Time pressure	Final 2021 score	Rank vs. 2019
1	China	1,402	17,192	4,072	100.0	88.4	13.1	100.0	72.8	0
2	India	1,400	6,461	1,163	59.1	50.7	63.7	82.7	64.4	0
3	Malaysia	33	27,402	112	74.5	74.0	27.2	43.9	54.1	0
4	Indonesia	272	12,222	407	51.3	30.7	57.6	60.7	53.0	+1
5	Bangladesh	170	5,307	171	15.7	2.4	96.0	88.4	53.0	New
6	Morocco	36	7,620	46	31.5	92.6	66.5	51.8	52.2	+6
7	Egypt	101	12,790	200	34.3	20.5	71.5	73.8	52.0	+19
8	Ghana	31	5,693	24	13.5	70.2	96.5	52.7	51.9	-4
9	Vietnam	96	10,869	125	27.8	42.2	56.0	98.4	51.8	+2

Modern retail channels, such as supermarkets, hypermarkets and convenience stores, have a combined **3,913** outlets and represent around **26%** of total sales

Traditional grocery retailers have **113,724** and represent **74%** of total sales. Small traditional grocers remain the dominant retail outlet in egypt

According to kearney, egypt's retail market is estimated at around **\$200 billion** in 2020 with expectations for growth at around a cagr of **5%** from 2020 to 2025 to reach **\$254 billion**

FISHBONE DIAGRAM

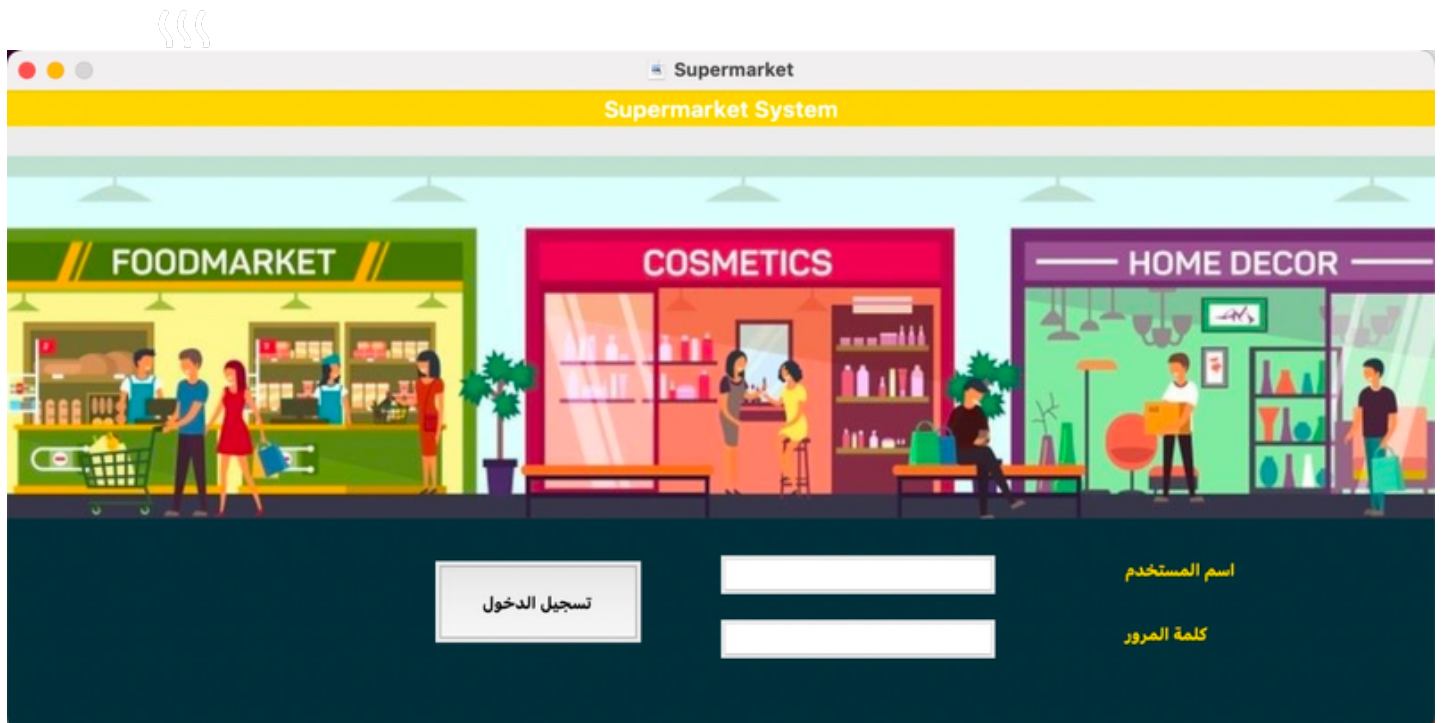


Fishbone diagram demonstrating all the issues and problems that is using the Customer regarding; Cost , Usability and user experience

TESTING AND PROTOTYPING

Login Page

Every system must have a login page to provide security for the system and privacy for the owner and the system user



TESTING AND PROTOTYPING

Program Interface

The system is made to be dynamic to be adapted to all kinds of businesses and retail shops it can be automatically adapted to fit the customer not be custom-made for every customer to save the cost of development every time per customer

The screenshot displays a software interface for a supermarket. At the top, a title bar reads "Supermarket" and "ادارة المشتريات". The main area is divided into three columns of product lists, each with a search bar and a list of items with checkboxes. The first column is labeled "البقوليات" (Legumes) and includes items like "البرغل" (Bulgur) and "فاسوليا" (Beans). The second column is labeled "اللوازم المنزلية" (Household Supplies) and includes items like "مصفاة" (Filter) and "صحن" (Plate). The third column is labeled "أدوات كهربائية" (Electrical Appliances) and includes items like "تلفزيون" (TV) and "مغسلة" (Washing Machine). To the right of these columns is a section for customer information, labeled "بيانات المشتري" (Customer Data), which includes fields for name, phone number, email, and address. Below this is a section for the shopping cart, labeled "الحساب" (Calculation), which shows a list of items with their quantities and prices, and a total amount. At the bottom, there are buttons for "الحساب" (Calculation), "تصدير الفاتورة" (Export Invoice), and "فاتورة إلكترونية" (Electronic Invoice).

الرقم	الاسم
0	البرغل
0	فاسوليا
0	عدس
0	معدنة
0	فريكة
0	حمص
0	فول
0	طعمية
0	بلنجان
3	بطاطس
0	لحم خنزير
0	بصلة
0	فلفل
0	بها
0	القمح
0	اللوز
2	البازلاء
0	عدس أحمر
0	عدس أخضر
2	العدس

الرقم	الاسم
0	مصفاة
2	صحن
0	كأس
0	سكين
2	شوك
0	طنجرة
0	منشفة
4	شاحن
0	سلة
0	صينية
0	وعاء الخلط
0	فتاحة العلب
0	مقشرة
0	محفظة
0	الكيس
3	سلة قمامة
0	أكواب
0	علب
0	لوحة التنظيف
1	حفارة
0	كشة

الرقم	الاسم
1	تلفزيون
0	مغسلة
1	لآلة
0	مكرويف
0	خلاط
0	مغلا كهربائية
2	راديو
0	بلاي ستيشن
2	فلتر ماء
4	مكواة
0	مبرد
0	مروحة أرضية
6	تكييف
0	فرن غاز
0	مكنسة
0	Hfaar
0	سخان
7	مشترك كهربائي
0	شاشة كمبيوتر
0	مروحة سقف

بيانات المشتري

الاسم: Omar

رقم الهاتف: 01095305177

رقم الفاتورة: 1356

البريد الإلكتروني: omarelsawy160@gmail.com

العنوان: CUFE-CHS Building 51

الحساب

Supermarket says Hello!

B.Num: 1356

NAME: Omar

PHONE: 01095305177

ADDRESS: CUFE-CHS Building 51

EMAIL: omarelsawy160@gmail.com

Items	Number	Price
Potatoes	3	15
Besala	2	8
Admamy	2	10
Sahn	2	40
Fork	2	10
Shahn	4	160
Basket	3	60
Hfaar	1	30
T.V.	1	10000
Fridge	1	20000
Radio	2	1000
Water Filter	2	6000
Iron	4	4000
Ground Fan	6	60000
Heater	7	3500
Total		104833\$

الحساب الكلي للبضائيات: \$33

حساب اللوازم المنزلية: \$300

حساب أدوات الكهرباء: \$104500

الفرغ الحقل

الحساب

تصدير الفاتورة

فاتورة إلكترونية

TESTING AND PROTOTYPING

E-mail Receipt

After the customer finishes the order the receipt of the whole selected items will be sent to the customer via email to meet to reduce the loss of papers of the receipt and this also provides the customer with more confidence that he will always be able to reach the receipt if the customer needed to



TESTING AND PROTOTYPING

Control Page

The Program includes a control page to manage the availability of the items in the store, manage the prices of items in the store, check the availability of items, and send an alert email if the item amount reaches the minimum limit that the user registered before.

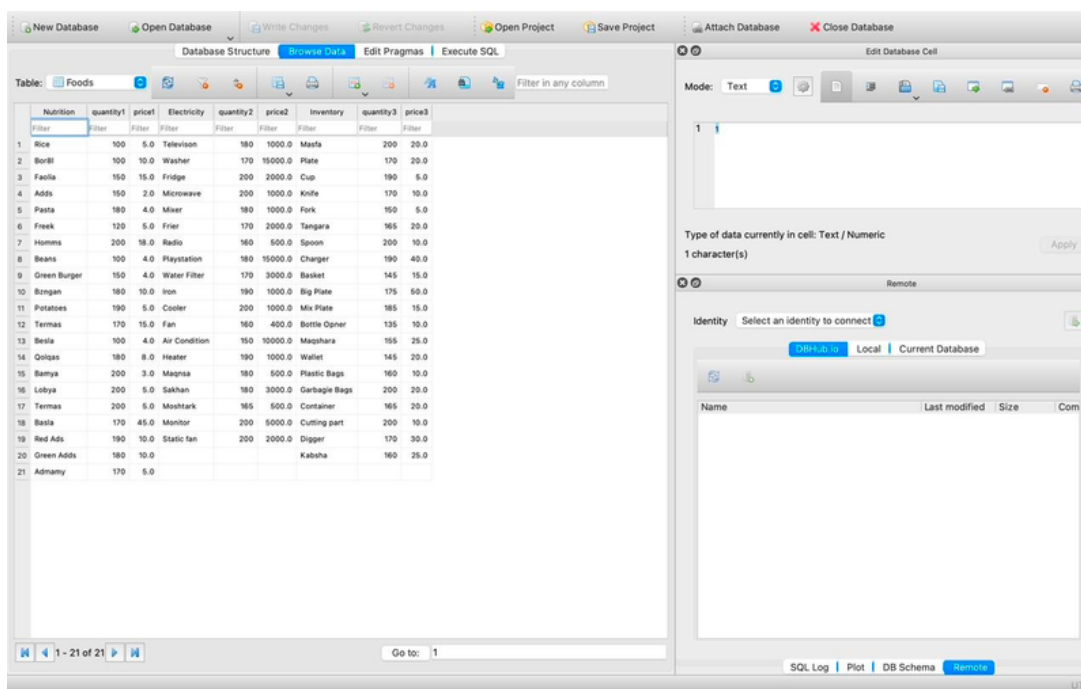


Supermarket						
ادارة المخزون						
الاوراق الكهربائية	الكمية	السعر	الاعلانية	الكمية	السعر	للاوامر المدفوعة
تلفزيون	180	1000.0	الرز	100	5.0	مصفاة
غسالة	170	15000.0	البرغل	100	10.0	صحن
ثلاجة	200	2000.0	فاسوليا	150	15.0	كأس
مكرويف	200	1000.0	عدس	150	2.0	سكين
خلاط	180	1000.0	معكرونة	180	4.0	شوك
مفلاة كهربائية	170	2000.0	فريكة	120	5.0	طنجرة
راديو	160	500.0	حمص	200	18.0	ملعقة
بلاي ستيشن	180	15000.0	فول	100	4.0	شاحن
فلتر ماء	170	3000.0	طعمية	150	4.0	سلة
مكواة	190	1000.0	بذجان	180	10.0	صينية
مبرد	200	1000.0	بطاطس	190	5.0	وعاء الخلط
مروحة أرضية	160	400.0	ترمس حلو	170	15.0	لثاجة العلب
تكييف	150	10000.0	بسلة	100	4.0	مقشرة
فرن غاز	190	1000.0	قلناس	180	8.0	محفظة
مكنسة	180	500.0	بميا	200	3.0	اكياس
سخان	180	3000.0	الترمس	200	5.0	سلة فماعة
مشترك كهربائي	165	500.0	اللوبي	200	5.0	اكواب
شاشة كمبيوتر	200	5000.0	البازلاء	170	45.0	علب
مروحة سقف	200	2000.0	عدس احمر	190	10.0	وحدة التقطيع

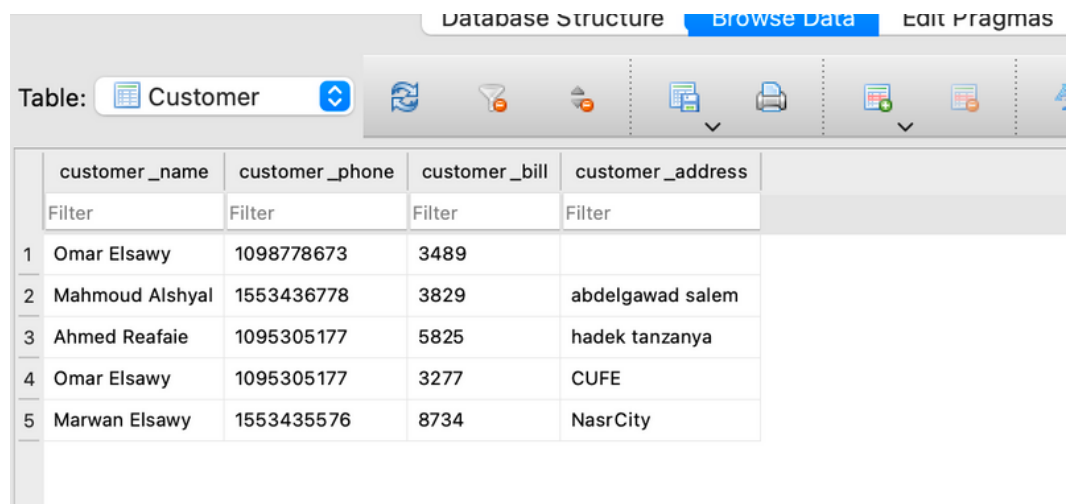
TESTING AND PROTOTYPING

Database Page

There is a database linked with the program. The first one is related to the customer, it saves his (Name, Phone, Address, and E-mail) to make the retail shop able to store their customers' data to provide them with discounts, promotions, and also in digital marketing campaigns. The second database is used to store the number of items and prices and sends alert emails to inform the user about the missing items or items that are out of stock.



	Nutrition	quantity1	price1	Electricity	quantity2	price2	Inventory	quantity3	price3
1	Rice	100	5.0	Television	180	1000.0	Masla	200	20.0
2	Borlfi	100	10.0	Washer	170	15000.0	Plate	170	20.0
3	Facila	150	15.0	Fridge	200	2000.0	Cup	190	5.0
4	Adds	150	2.0	Microwave	200	1000.0	Knife	170	10.0
5	Pasta	180	4.0	Mixer	180	1000.0	Fork	150	5.0
6	Freak	120	5.0	Frier	170	2000.0	Tangara	165	20.0
7	Hommis	200	18.0	Radio	160	500.0	Spoon	200	10.0
8	Beans	100	4.0	Playstation	180	15000.0	Charger	190	40.0
9	Green Burger	150	4.0	Water Filter	170	3000.0	Basket	145	15.0
10	Bongan	180	10.0	iron	190	1000.0	Big Plate	175	50.0
11	Potatoes	190	5.0	Cooler	200	1000.0	Mix Plate	185	15.0
12	Termas	170	15.0	Fan	160	400.0	Bottle Opner	135	10.0
13	Besla	100	4.0	Air Condition	150	10000.0	Masahara	155	25.0
14	Qolqas	180	8.0	Heater	190	1000.0	Wallet	145	20.0
15	Bahya	200	3.0	Magma	180	500.0	Plastic Bags	160	10.0
16	Lobya	200	5.0	Sakhan	180	3000.0	Garbage Bags	200	20.0
17	Termas	200	5.0	Moshark	165	500.0	Container	165	20.0
18	Basla	170	45.0	Monitor	200	5000.0	Cutting part	200	10.0
19	Red Ads	190	10.0	Static fan	200	2000.0	Digger	170	30.0
20	Green Adds	180	10.0				Kalasha	160	25.0
21	Adnamy	170	5.0						



	customer_name	customer_phone	customer_bill	customer_address
1	Omar Elsaywy	1098778673	3489	
2	Mahmoud Alshyal	1553436778	3829	abdelgawad salem
3	Ahmed Reafaie	1095305177	5825	hadek tanzanya
4	Omar Elsaywy	1095305177	3277	CUFE
5	Marwan Elsaywy	1553435576	8734	NasrCity

TESTING AND PROTOTYPING

Customer Interface app

The app includes a page that the customer can use and react to be able to know the total of the items selected and a feature that will be added that the selected items will be sent to the cashier man directly to provide more time and effort saving.

Supermarket

ادارة المشتريات

البقوليات

0

الرز

0

البرغل

0

فاسوليا

0

عدس

0

معكرونة

0

فريكة

0

حمص

0

فول

0

طعمية

0

بذنجان

0

بطاطس

0

ترمس حلو

0

بسلة

0

فلقاس

0

بميا

0

الترمس

0

اللوبيا

0

البازلاء

0

عدس اخضر

0

عدس اخضر

0

الادعامي

اللاوازم المنزلية

0

مصفاة

0

صحن

0

كأس

0

سكين

0

شوك

0

طنجرة

0

ملعقة

0

شاحن

0

سلة

0

صينية

0

وعاء الخلط

0

فتاحة العلب

0

مقشرة

0

محفظة

0

أكياس

0

سلة قمامة

0

أكواب

0

علب

0

لوحة التقطيع

0

حفاة

0

كبشة

أدوات كهربائية

0

تلفزيون

0

غسالة

0

ثلاجة

0

مكرويف

0

خلاط

0

مفلة كهربائية

0

راديو

0

بلاي ستيشن

0

فلتر ماء

0

مكواة

0

مبرد

0

مروحة ارضية

0

تكييف

0

فرن غاز

0

مكنسة

0

سخان

0

مشارك كهربائي

0

شاشة كمبيوتر

0

مروحة سقف

\$0

الحساب الكلي للبقوليات

\$0

حساب اللاوازم المنزلية

\$0

حساب ادوات الكهرباء

الحساب

TESTING AND PROTOTYPING

Coding

The Program includes many features so the program required many lines of code and functions such as:

- Mailing Function
- Database Functions
- Calculating Functions
- Converting File Functions (text to pdf)

The Program Contains More than 1500 lines of code

```
def Database_Add():
    textarea.config(state=NORMAL)
    try:
        EntFatora.config(state=NORMAL)
        cr.execute(f"insert into Customer(customer_name,customer_phone,customer_bill,customer_address) values('{EntName.get()}', '{EntPhone.get()}')")
        db.commit()
        messagebox.showinfo('ADDED', 'Customer Info Added')
        EntFatora.config(state=DISABLED)
    except sqlite3.OperationalError:
        print(sqlite3.OperationalError)
        textarea.config(state=DISABLED)

def Database_Search():
    EntFatora.config(state=NORMAL)
    cr.execute("select customer_name from Customer")
    cr.execute("select customer_phone from Customer")
    cr.execute("select customer_bill from Customer")
    cr.execute(f"select * from Customer where customer_name = '{EntName.get()}' and customer_phone = '{EntPhone.get()}'")
    results = cr.fetchone()
    print(results)
    if results != None:
        messagebox.showinfo('Found', f'{results}')
    else:
        messagebox.showerror("Not Found", "Customer Not Found")
    EntFatora.config(state=DISABLED)
```



```
def remove_non_ascii(input_file):
    with open(input_file, 'r') as f:
        lines = f.readlines()
        for i in range(len(lines)):
            lines[i] = ''.join(filter(lambda x: ord(x) < 128, lines[i]))
    return lines

def convert_to_pdf(input_file, output_file):
    pdf = FPDF()
    pdf.add_page()
    pdf.set_font("Arial", size=12)
    lines = remove_non_ascii(input_file)
    for line in lines:
        pdf.cell(200, 10, txt=line, ln=1)
    pdf.output(output_file)
```

```
# Email Credentials and Settings
def sendEmail(to_email):
    # from bettersuper import customermail
    # to_email = 'omar.futura.123@gmail.com'
    from_email = 'omarelsawy160@gmail.com'
    subject = 'PDF Attachment Test'
    smtp_server = 'smtp.example.com'
    smtp_port = 587

    from pdf import convert_to_pdf

    # Create a new email message with the PDF file as an attachment
    message = MIME multipart()
    message['To'] = to_email
    message['From'] = from_email
    message['Subject'] = subject
    convert_to_pdf("Fatora.txt", "fatora.pdf")
    with open('fatora.pdf', 'rb') as pdf_file:
        attachment = MIMEApplication(pdf_file.read(), _subtype='pdf')
        attachment.add_header('Content-Disposition', 'attachment', filename='Supermarket Recipt.pdf')
    message.attach(attachment)
    smtp_obj = smtplib.SMTP('smtp.gmail.com', 587)
    smtp_obj.ehlo()
    smtp_obj.starttls()
    smtp_obj.login('omarelsawy160@gmail.com', 'qxnsyaxbqeatgtxs')
    smtp_obj.sendmail(from_email, to_email, message.as_string())
    smtp_obj.quit()
```


COST ANALYSIS

Programs	Our program	Other competitors
Development costs	After using alternatives that costs less and making our software sold to many Customers it will costs 350\$	Under Normal Circumstances the cost will be 1800\$
Marketing cost	It will cost ads and digital marketing to make Customers aware of the product AVG (50\$)	It will cost ads and digital marking costs 300\$
Annual Support	The annual support will be for free for this first 5 months and then will cost 25\$ per month	It costs under normal condition between 200\$ - 400\$
Total Price	350\$ + 50\$ + 25\$	1800\$ + 300\$ + 300\$
	425\$	2400\$

Development cost

It costs us \$30 per hour

It costs in default in ranges between \$75 - \$150

Database costs

Setting up data base and tables \$250 and ongoing maintenance \$50 per month

Setting up data base and tables \$500 and ongoing maintenance \$150 per month

Email integration and Digital recite generation

Email hosting cost's \$25 per month and PDF generating cost \$100

Setting up email and API information costs \$100 - \$500

Desision matrix

Factors	Weight	Mechanical lamp	Food dryer	Retail program	Smart plug
Influence on people	20	6	10	8	9
cost	20	1	1	10	6
applicability	20	1	1	10	8
materials	20	1	1	10	1
Time	20	1	1	5	2

Idea	Score
Mechanical lamp	200
Food dryer	200
Retail program	860
Smart plug	520



Retail program

has the highest score which indicates that it was the ideas we are working on

OBJECTIVES PYRAMIDS



Having a clear goal or object is a very crucial part in any project or process in which every task is done according to its priority and it also helps achieving the maximum from the task

TASK AND RESPONSIBILITIES

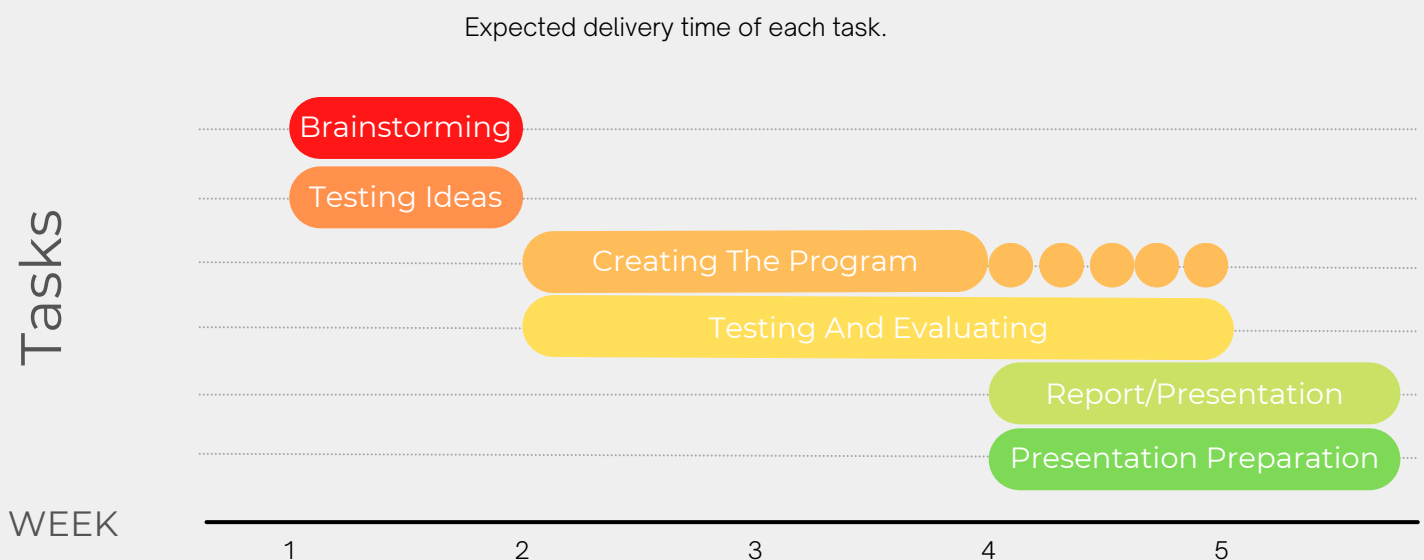
TASKS	OMAR EL SAWY	AHMED EL-REFAIE	ABD EL-RAHMAN HANY
DATA GATHERING	C	K	C
CODE AND SCRIPTS	K	M	M
TESTING AND PROTOTYPING	K	C	M
REPORT WRITING	M	K	K
PRESENTATION EDITING	M	C	K

K = Key responsible

C = Co responsible

M = Team member

GANTT CHART (TIME SCHEDULE)



A Gantt chart is a type of bar chart that illustrates a project schedule. This chart lists the tasks to be performed on the vertical axis, and time intervals on the horizontal axis. The width of the horizontal bars in the graph shows the duration of each activity. Gantt charts illustrate the start and finish dates of the terminal elements and summary elements of a project. Terminal elements and summary elements constitute the work breakdown structure of the project. Modern Gantt charts also show the dependency (i.e., precedence network) relationships between activities. Gantt charts can be used to show current schedule status using percent-complete shadings and a vertical "TODAY" line.

Gantt charts are sometimes equated with bar charts.

Gantt charts are usually created initially using an early start time approach, where each task is scheduled to start immediately when its prerequisites are complete. This method maximizes the float time available for all tasks.

CONCLUSION

The project aims to change peoples perspective about expensive complicated systems and make more poeple have more interactions with advanced technologies



We have created a simple user freindly system



An enviromental friendly system



The main feature for the systme is it is extreamily reachable to everyone including all retail stores with all econimical classes