Department of Computer Science

Project Report

Course: Object Oriented Programming 2 Group: 06

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21-45791-3	Rafayet Zaaman Abir	D

Project Title: PC Builder and Component Shopping System.

Project Description and Features

The name of the project is "TitanTech". It is an innovative e-commerce platform that focuses on providing a seamless experience for customers to build and customize their own PCs, as well as purchase individual electronic products. The platform ensures a streamlined process from product selection to order placement. Additionally, "TitanTech" incorporates an admin and staff management system to efficiently handle product listings, user accounts and order processing.

Key Features:

- **User Registration and Login:**
  - Customers can register on "TitanTech" to create an account.
  - Account approval is required from an admin to grant access to login.

- **Custom PC Builder:**
  - Customers have the ability to build their own PCs by selecting individual components.
  - User-friendly interface for easy customization, including processors, graphics cards, RAM, storage, and more.

- **Product Catalog:**
  - Extensive product catalog with a wide range of electronic products for individual purchase.
  - Detailed product descriptions and specifications to help customer's decision making.

- **Order Management:**
    - Customers can place orders for custom-built PCs or individual products.
    - Order tracking system to keep admins and staffs informed about the status of the orders.

- **Admin Panel:**
    - Admins have exclusive access to an admin panel for comprehensive management.
    - View all products, orders and staffs for efficient monitoring.

- **Staff Management:**
    - Admins can add and remove staff members to facilitate internal collaboration.
    - Staff accounts have limited access, ensuring security and controlled system use (view all products and orders).

- **Product Management:**
    - Admins and staff can add new products to the catalog.
    - Ability to remove outdated or discontinued products to keep the catalog up-to-date.

- **Order Processing:**
    - Admins can view all orders and their details for efficient processing.
    - Staff members have access to order information to fulfill customer requests.

- **Responsive Design:**
    - The platform is designed to be accessible on various devices, ensuring a seamless user experience on desktops, tablets, and mobile phones.

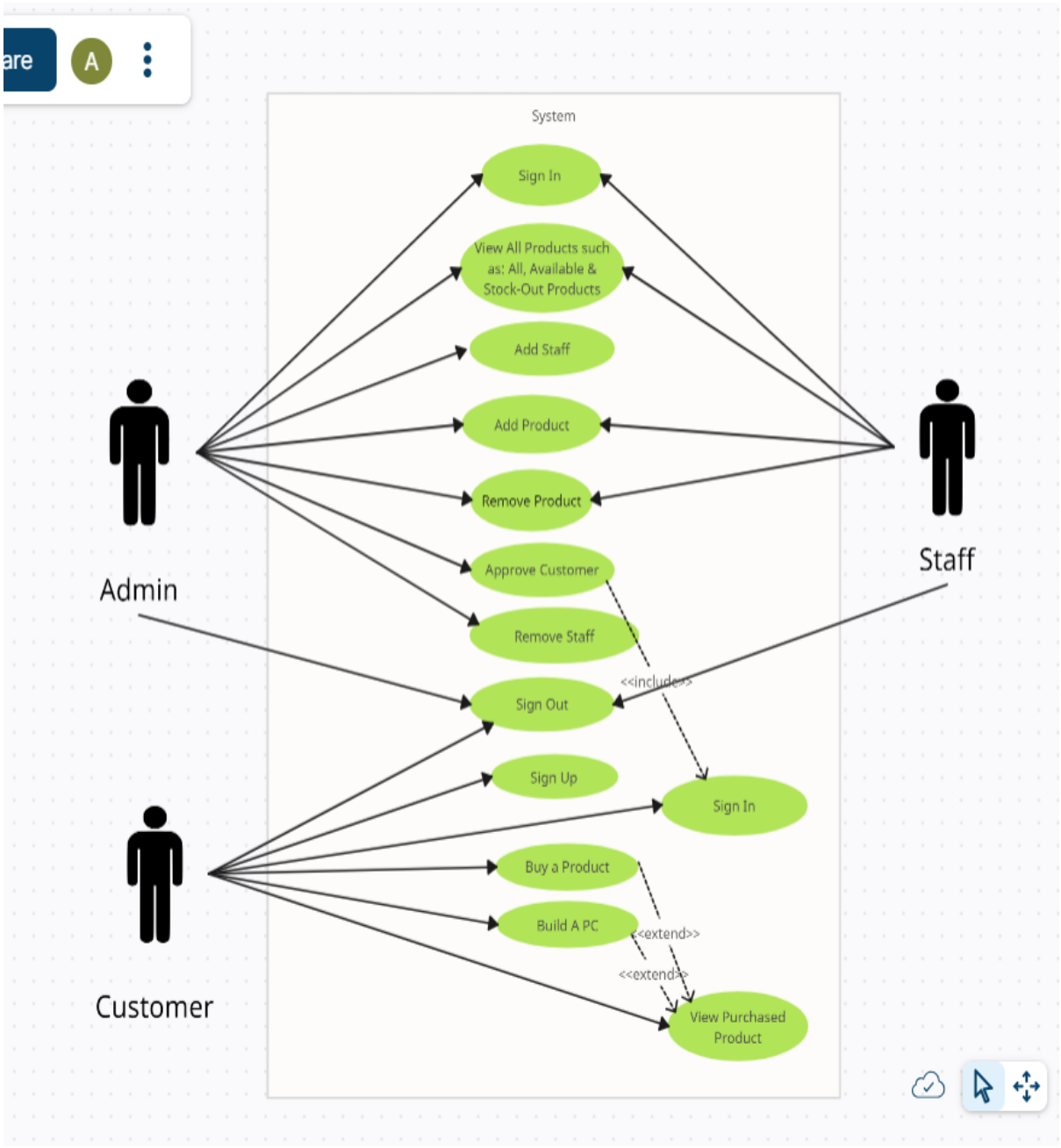
TitanTech aims to provide a user-friendly interface for customers to explore, customize pc builds, and purchase electronic products while offering admins and staff the tools they need for effective management.

User Stories

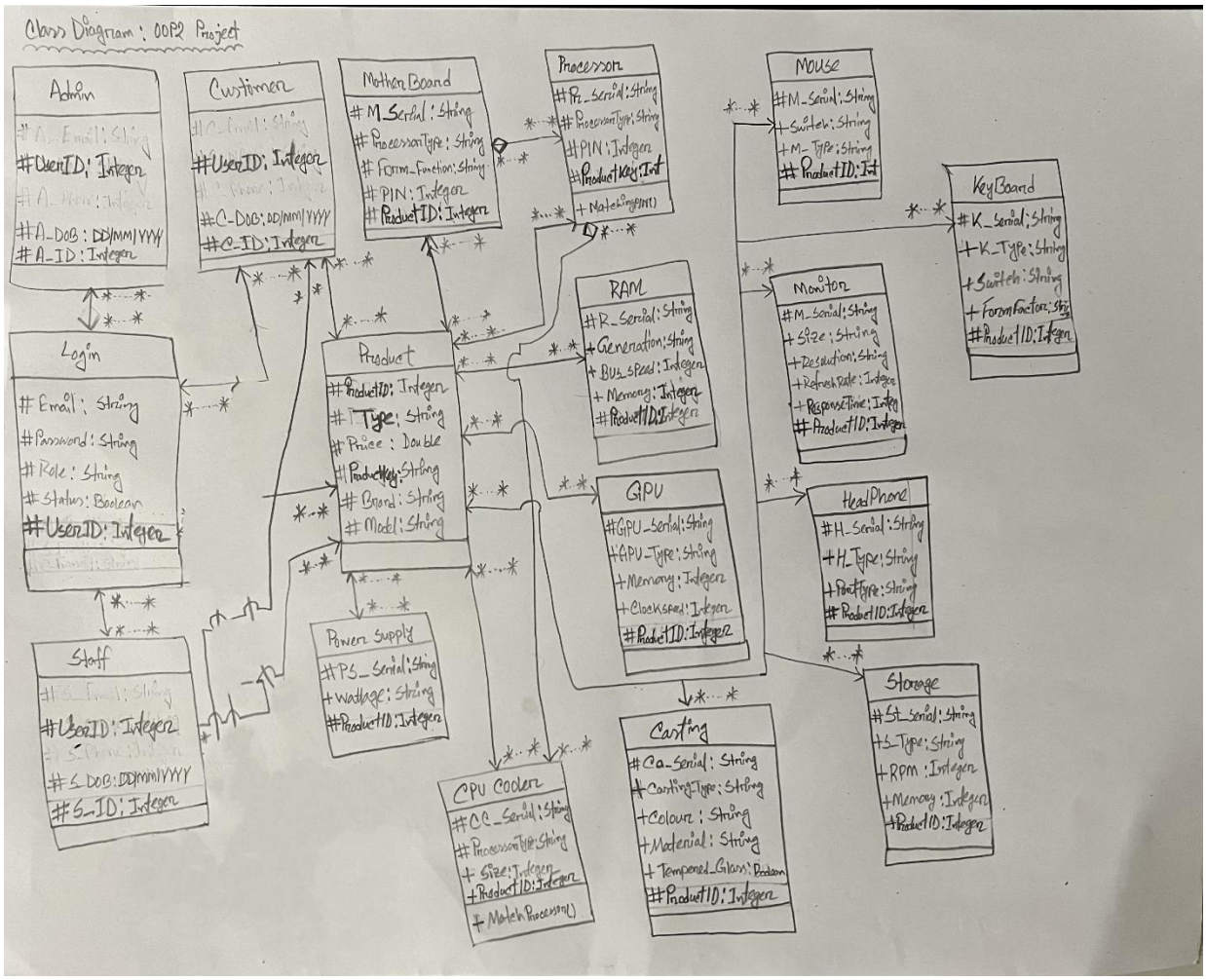
Use Case Name	Actor	User Story
Sign In	Administrator	As a user of the system, I want to sign-in to the system to access the features of the system available for an administrator.
Add Staff	Administrator	As an administrator of the system, I want to add one or many staffs to the system.
Remove Staff	Administrator	As an administrator of the system, I want to remove one or many staffs from the system.
Add Product	Administrator	As an administrator of the system, I want to add one or many products to the system.
Remove Product	Administrator	As an administrator of the system, I want to remove one or many products from the system.
Approve Member	Administrator	As an administrator of the system, I want to approve any unapproved member of the system.
View All Orders	Administrator	As an administrator of the system, I want to view all of the orders placed by the customers of the system.
View All Product	Administrator	As an administrator of the system, I want to view all of the products of the system.
Sign out	Administrator	As an administrator of the system, I want to sign-out from the system and stop receiving the services of the system provided to the administrator.
Sign Up	Customer	As a customer of the system, I want to sign-up to the system to be a valid customer for the system.
Sign In	Customer	As a customer of the system, I want to sign-in to the system to access the features of the system available for a customer.
View All Products	Customer	As a customer of the system, I want to view all the products stored in the system.
Build a PC	Customer	As a customer of the system, I want to build a complete pc with all of the required components that are available in the system.
Order a PC Build	Customer	As a customer of the system, I want to order a pc build that I have chosen in the system.
Order a Product	Customer	As a customer of the system, I want to order individual product that I have chosen in the system.

Sign out	Customer	As a customer of the system, I want to sign-out from the system and stop receiving the services of the system provided to a customer.
Sign In	Staff	As a staff of the system, I want to sign-in to the system to access the features of the system available for a staff.
Add Product	Staff	As a staff of the system, I want to add one or many products to the system.
Remove Product	Staff	As a staff of the system, I want to remove one or many products from the system.
View All Product	Staff	As an administrator of the system, I want to view all of the products of the system.
View All Orders	Staff	As a staff of the system, I want to view all of the orders placed by the customers of the system.
Sign out	Staff	As a staff of the system, I want to sign-out from the system and stop receiving the services of the system provided to a staff.

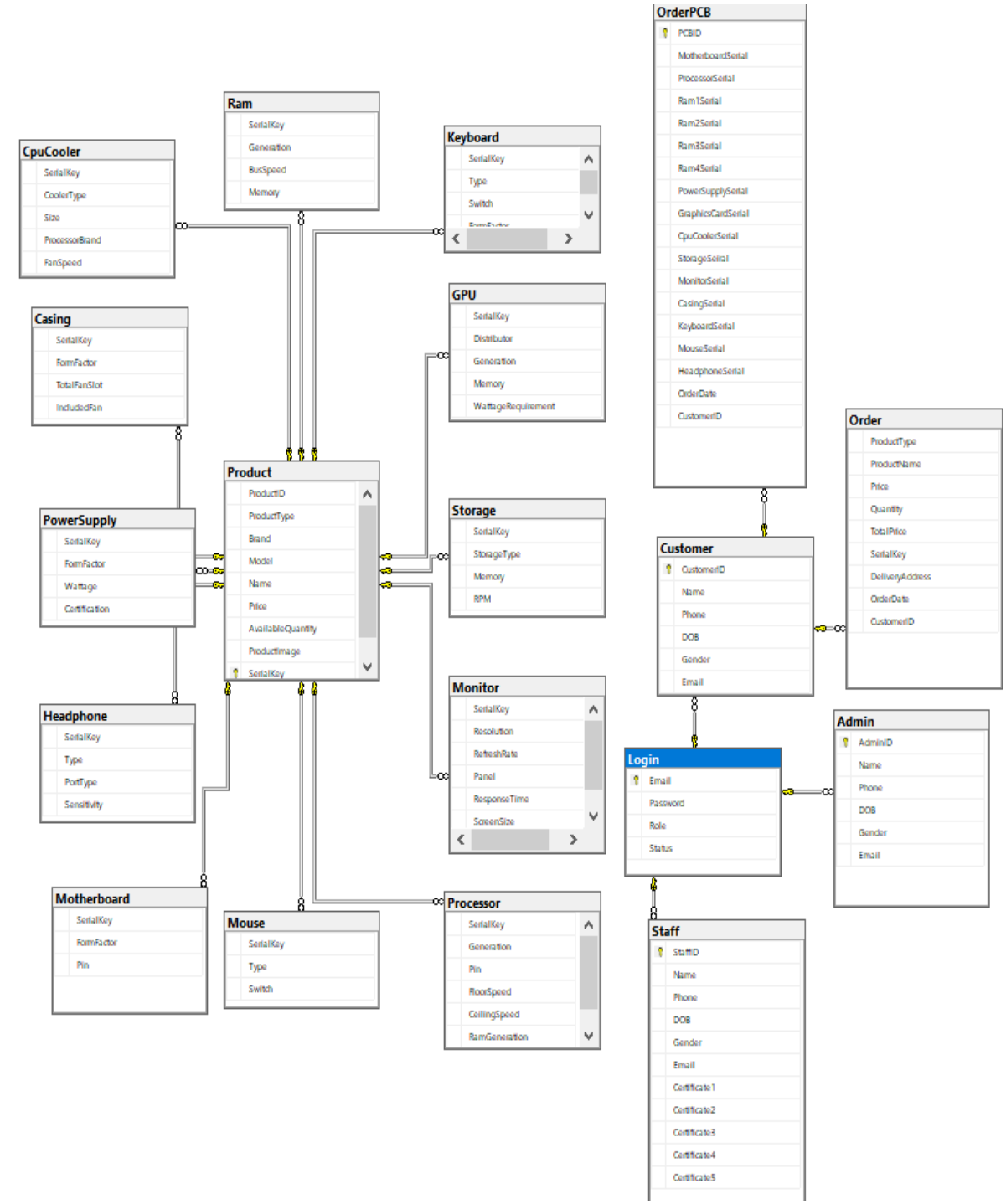
Use Case Diagram



Class Diagram



E-R Diagram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PCBID
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ProcessorSerial
Ram1Serial
Ram2Serial
Ram3Serial
Ram4Serial
PowerSupplySerial
GraphicsCardSerial
CpuCoolerSerial
StorageSerial
MonitorSerial
CasingSerial
KeyboardSerial
MouseSerial
HeadphoneSerial
OrderDate
CustomerID
Ram
SerialKey
Generation
BusSpeed
Memory
Keyboard
SerialKey
Type
Switch
CpuCooler
SerialKey
CoolerType
Size
ProcessorBrand
FanSpeed
GPU
SerialKey
Distributor
Generation
Memory
WattageRequirement
Casing
SerialKey
FormFactor
TotalFanSlot
IncludedFan
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ProductType
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Brand
Model
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Price
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Wattage
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DOB
Gender
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Status
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SerialKey
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Sensitivity
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SerialKey
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Pin
Mouse
SerialKey
Type
Switch
Processor
SerialKey
Generation
Pin
FloorSpeed
CeilingSpeed
RamGeneration
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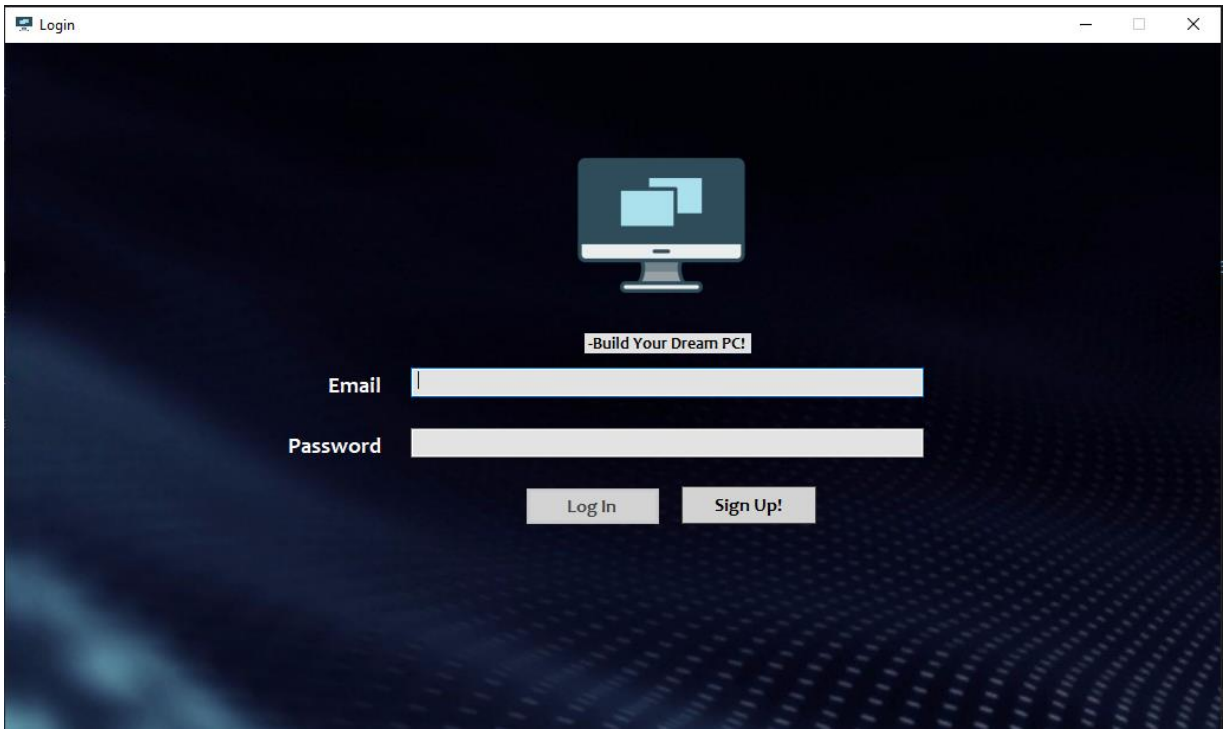
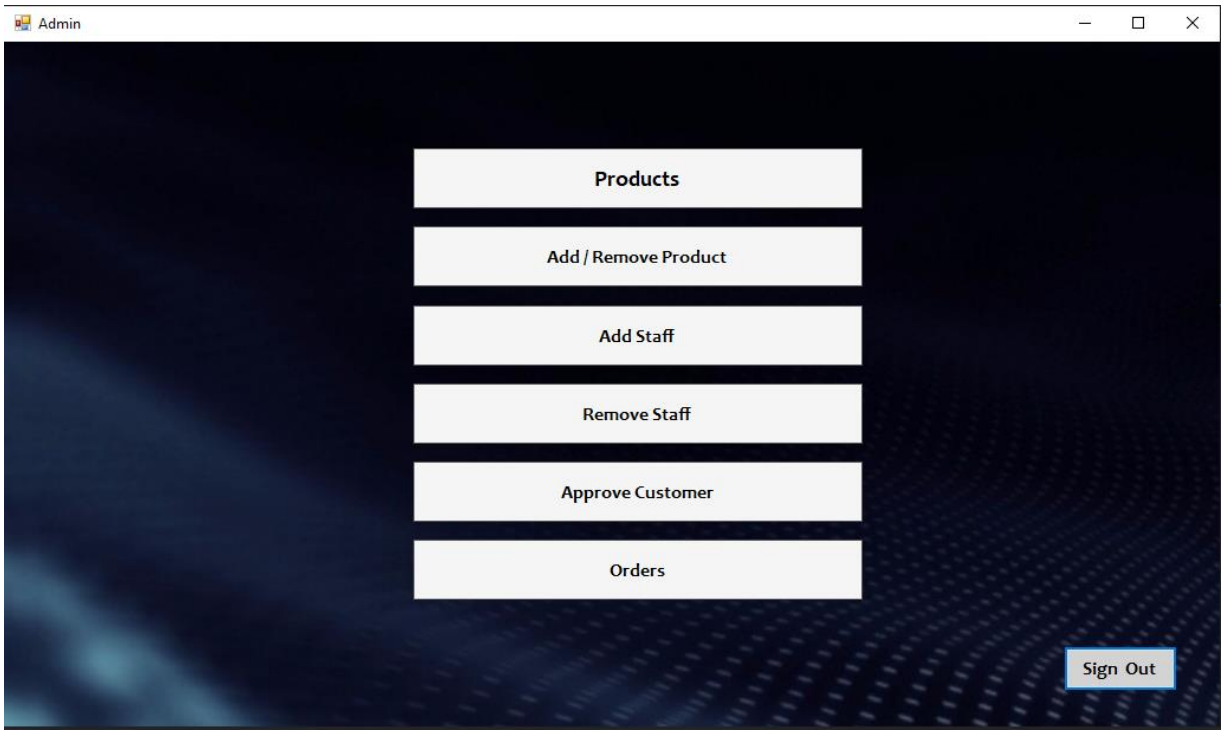
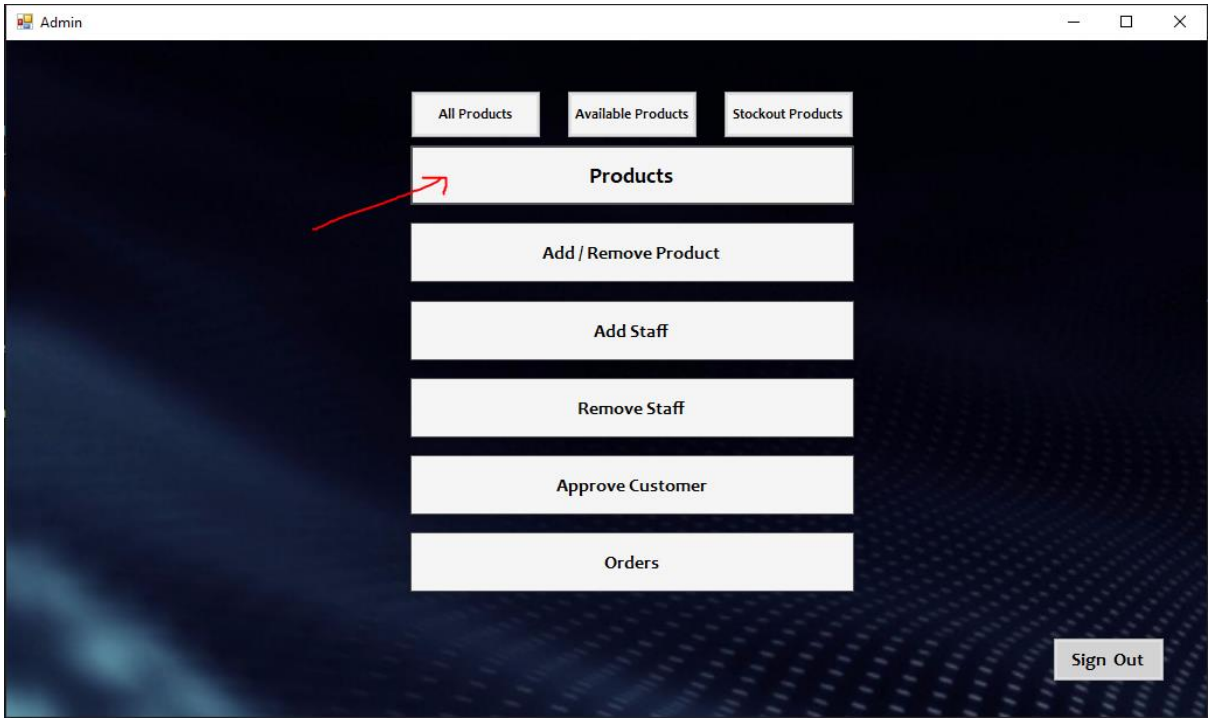
Certificate2
Certificate3
Certificate4
Certificate5

User Interface Design

Admin :



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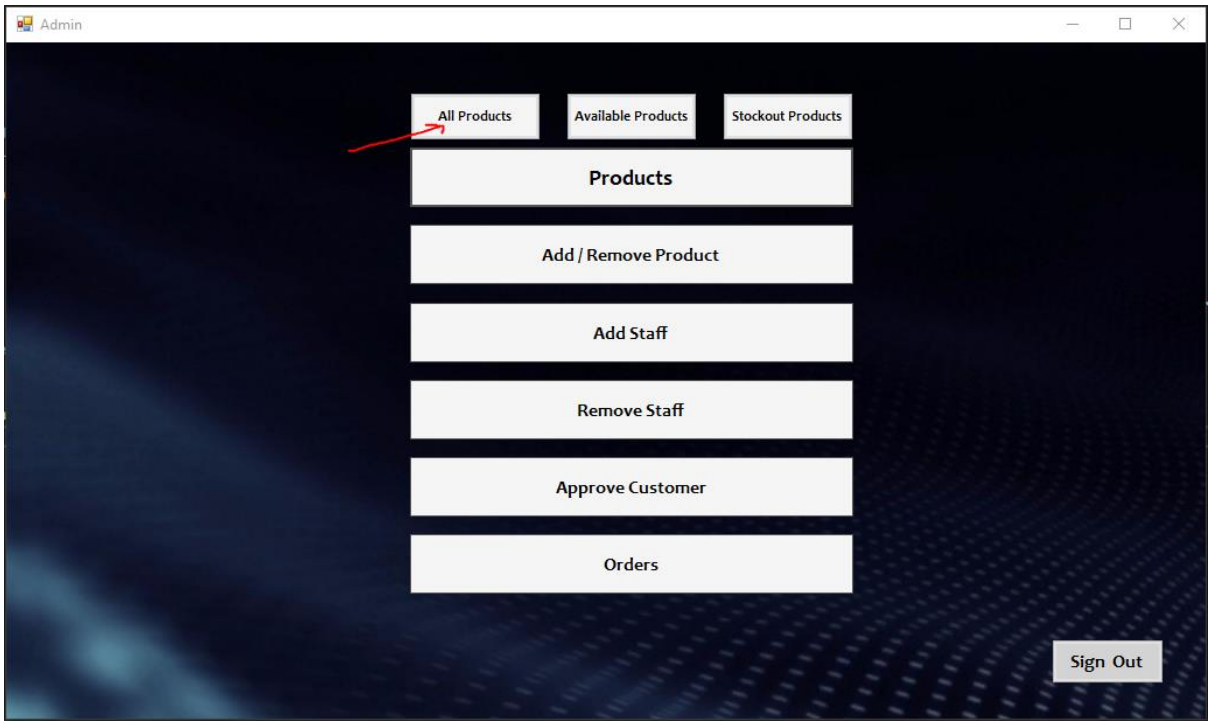
Available Products
Stockout Products
Products
Add / Remove Product
Add Staff
Remove Staff
Approve Customer
Orders
Sign Out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Stockout Products
Products
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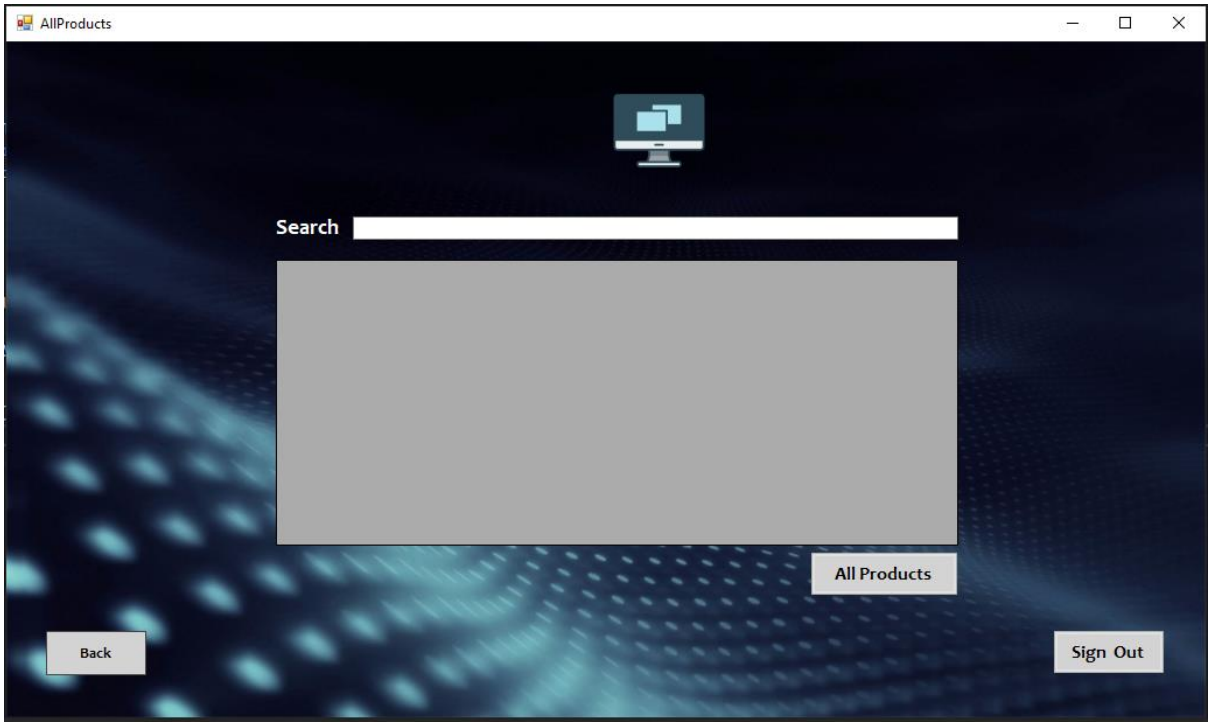
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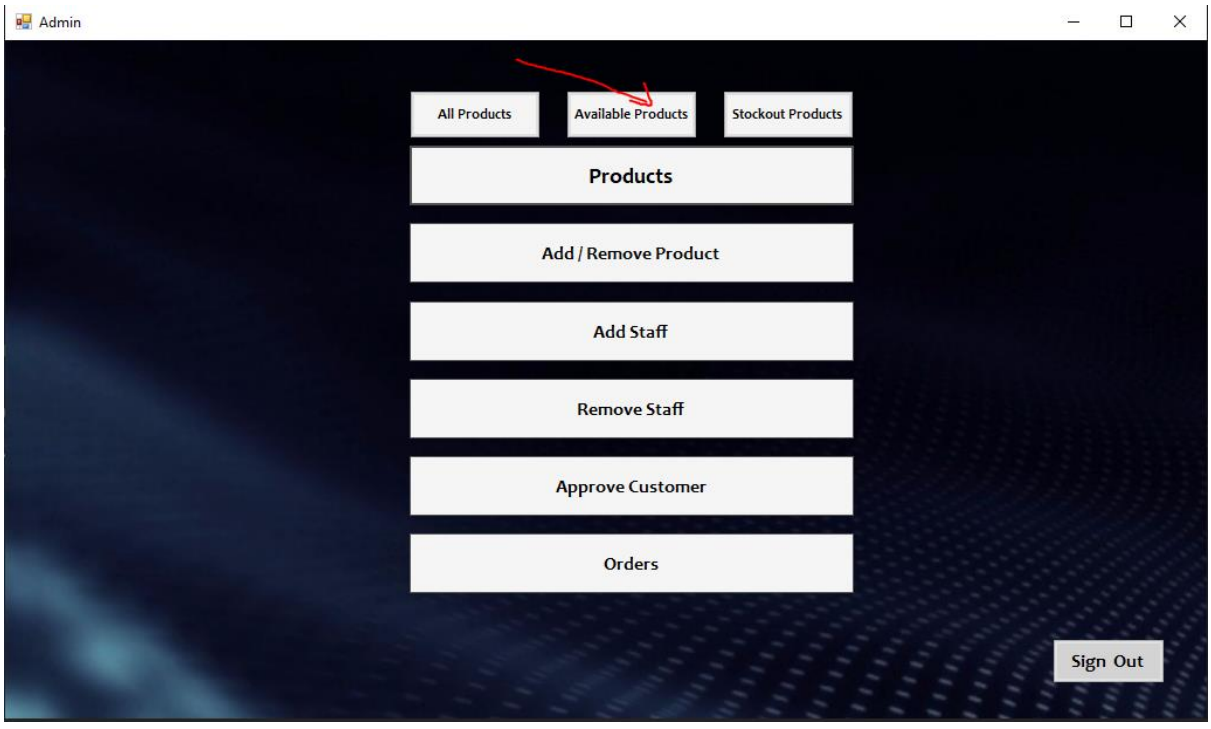
Sign Out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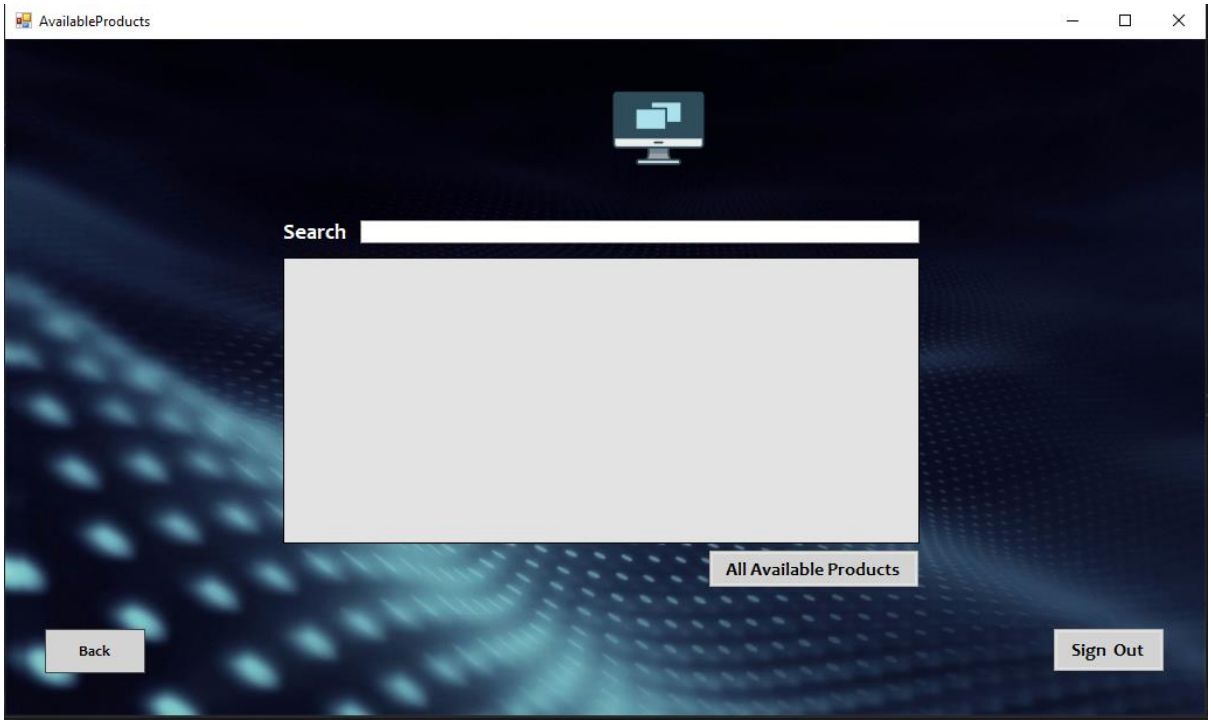
All Products
Available Products
Stockout Products
Products
Add / Remove Product
Add Staff
Remove Staff
Approve Customer
Orders
Sign Out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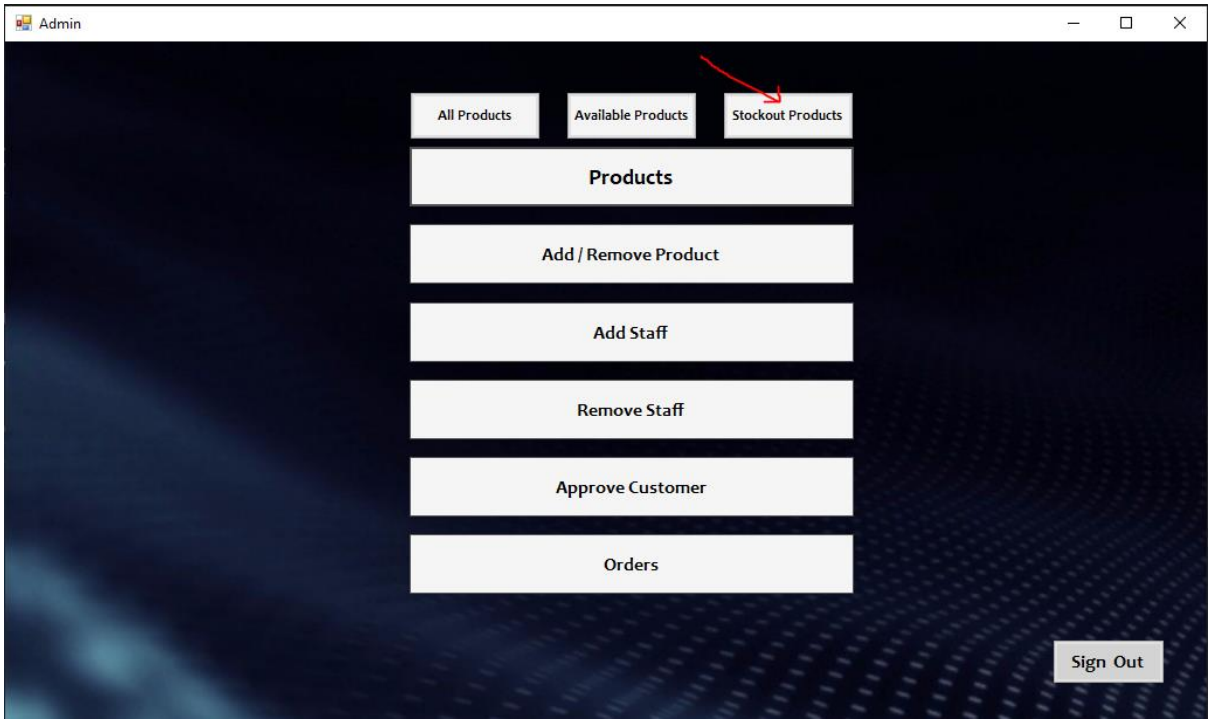
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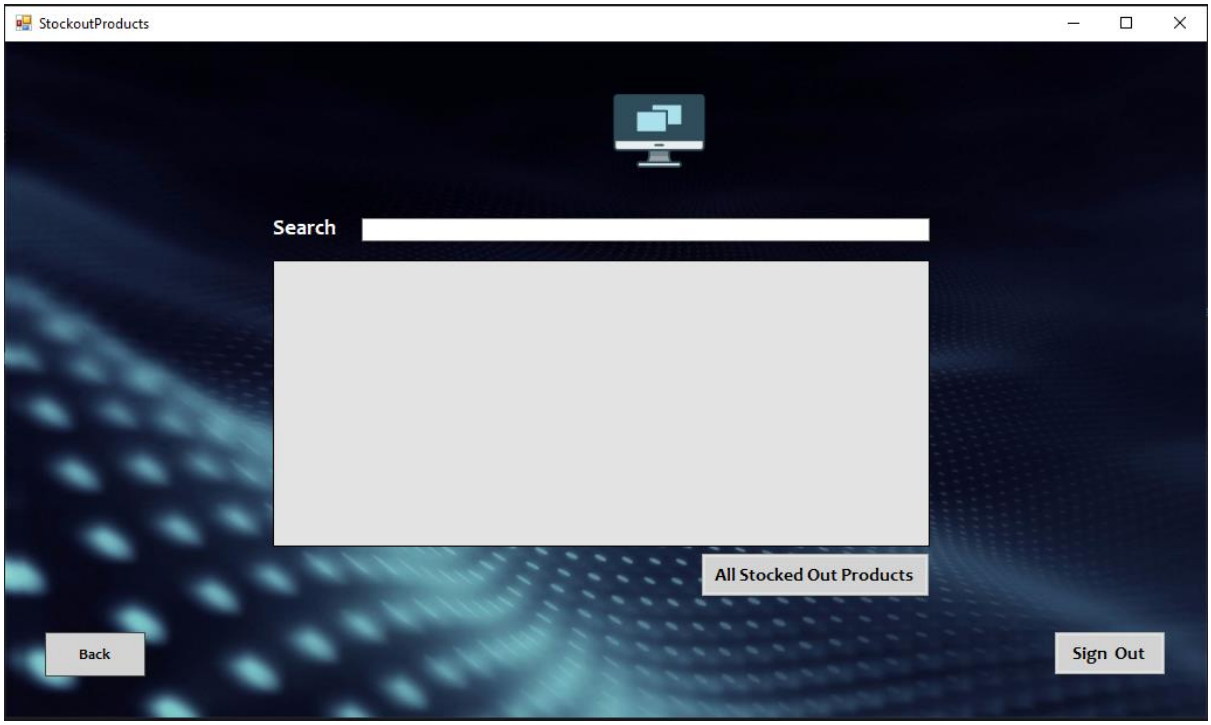
Stockout Products
Products
Add / Remove Product
Add Staff
Remove Staff
Approve Customer
Orders
Sign Out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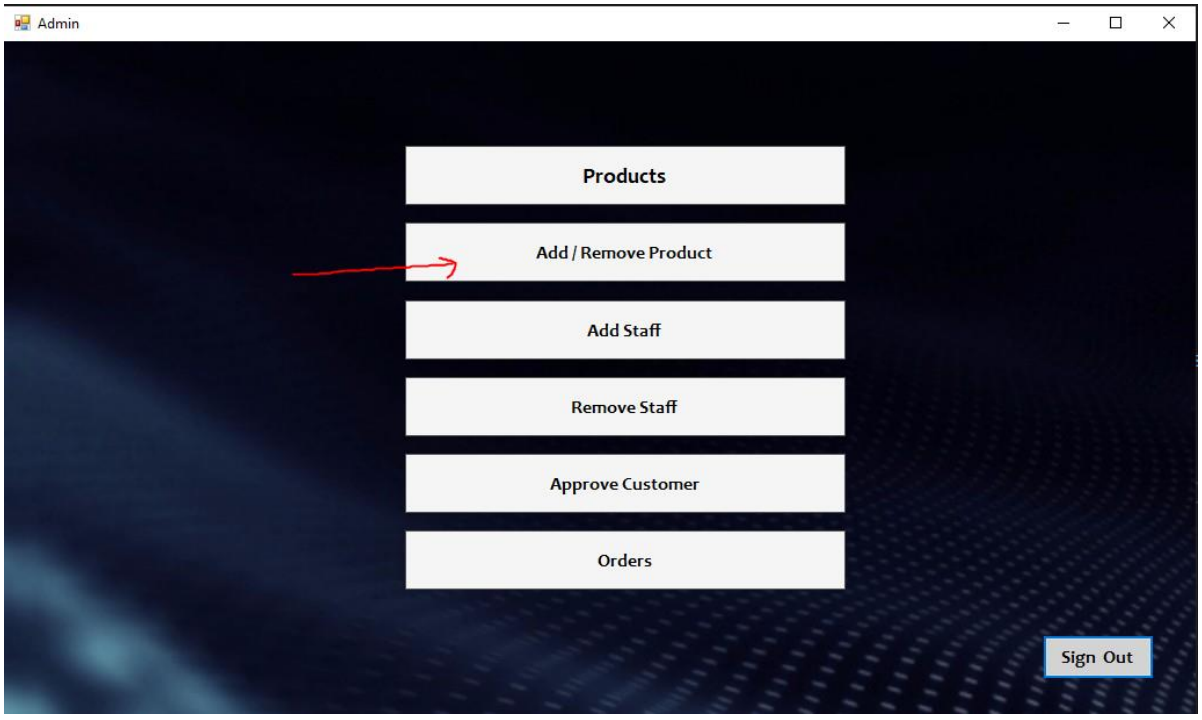
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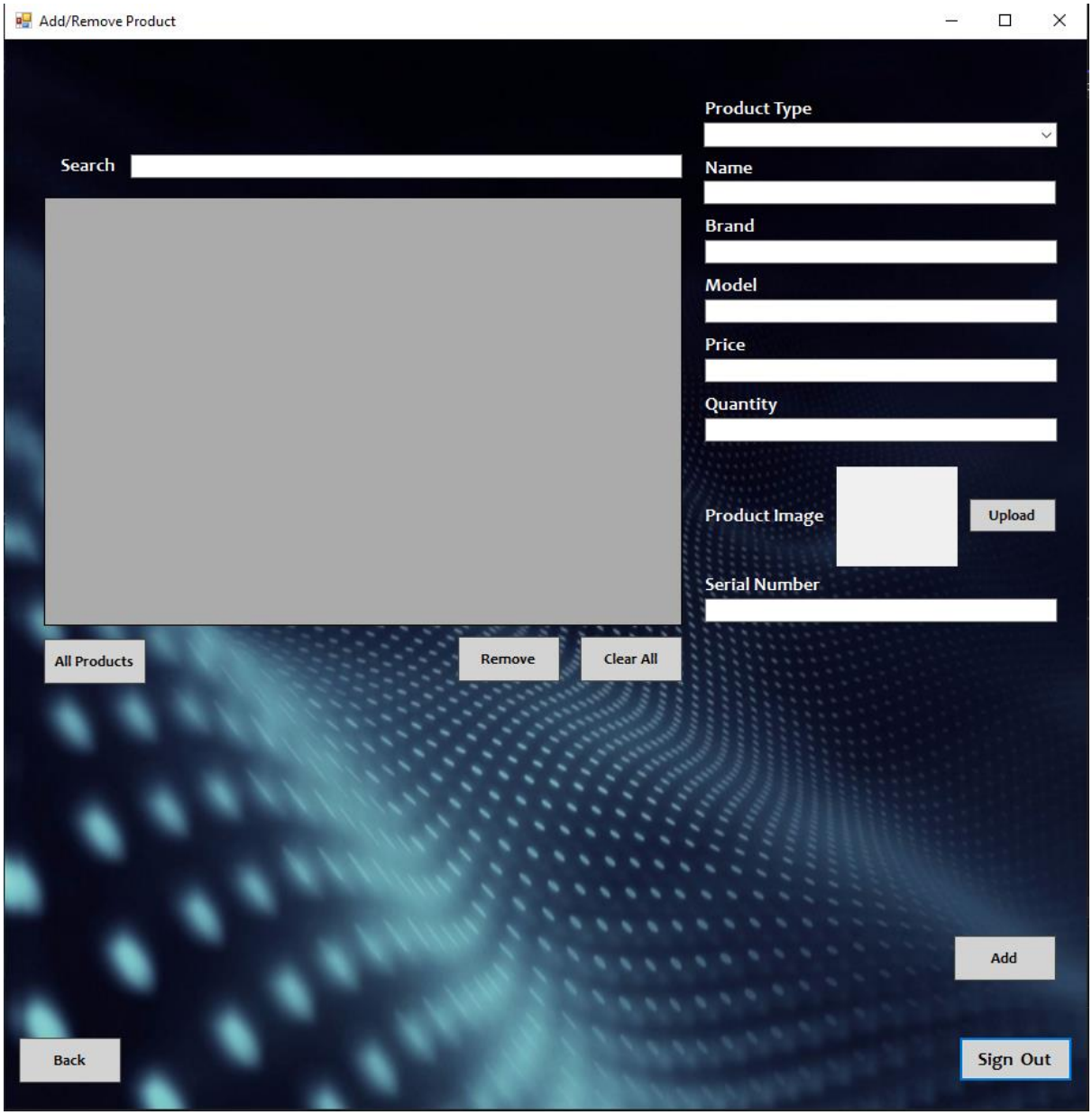
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Clear All
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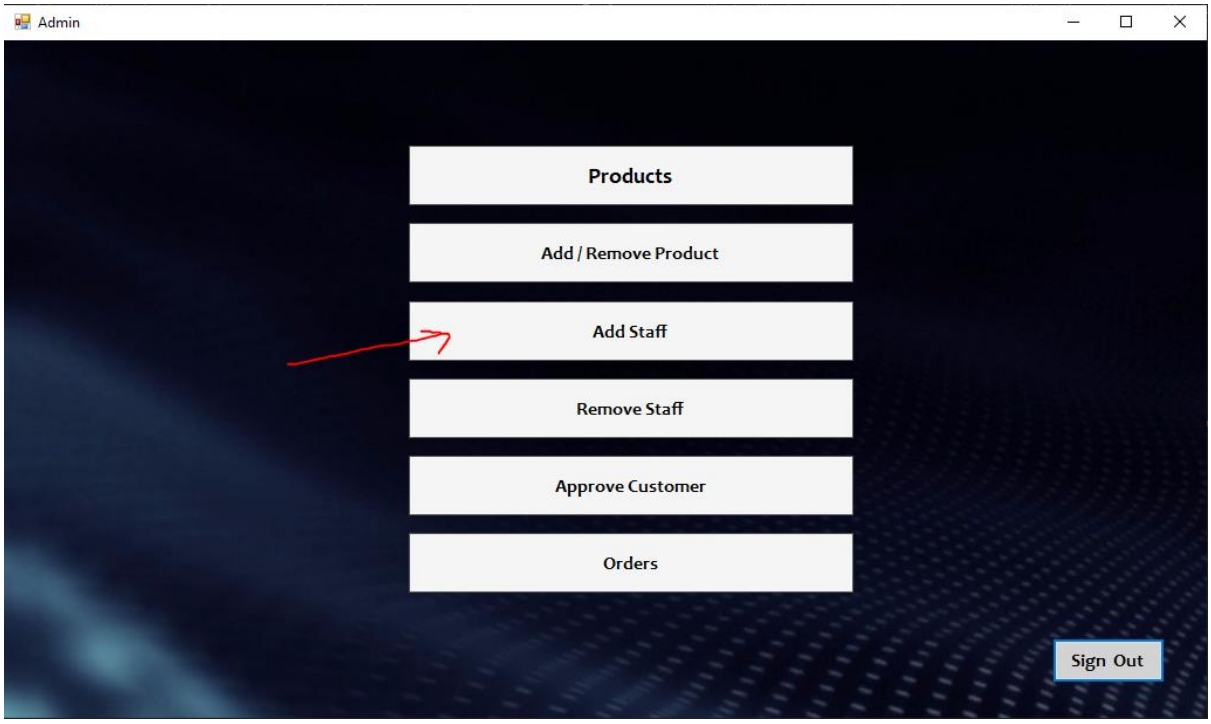
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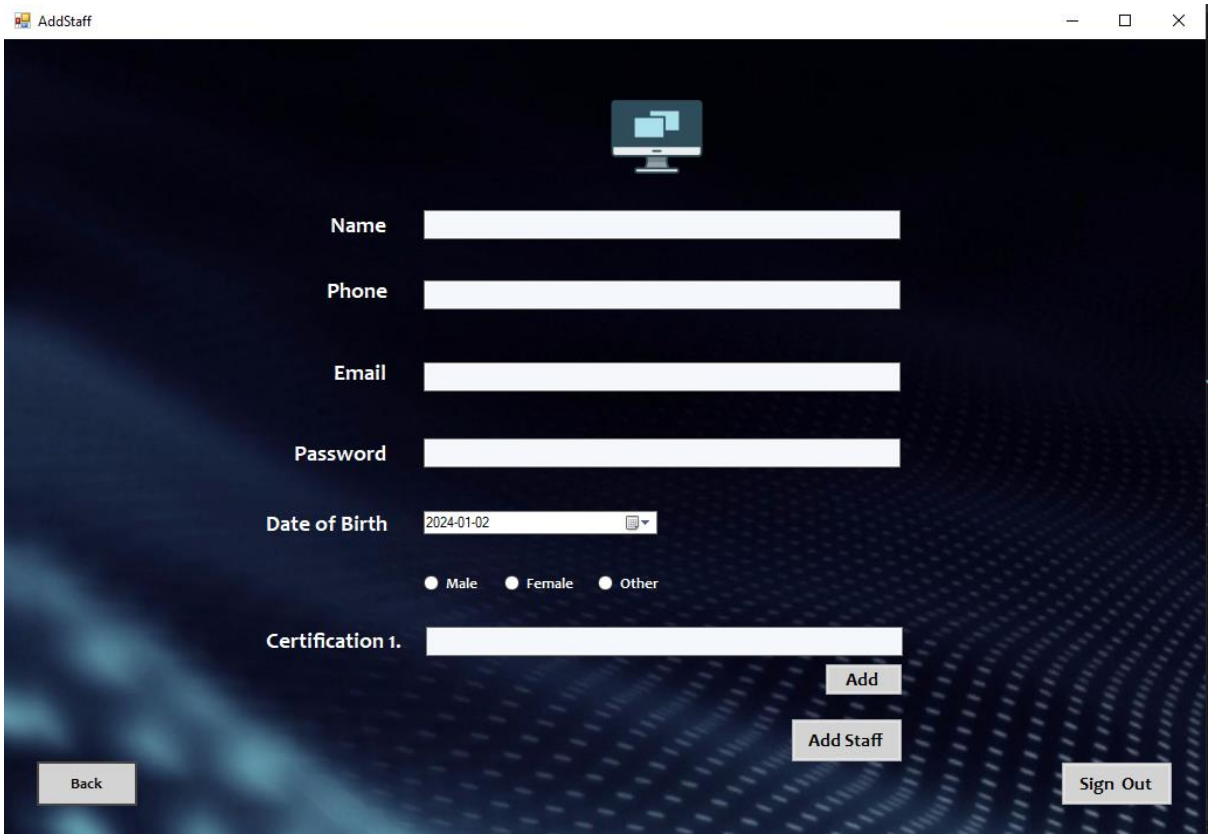
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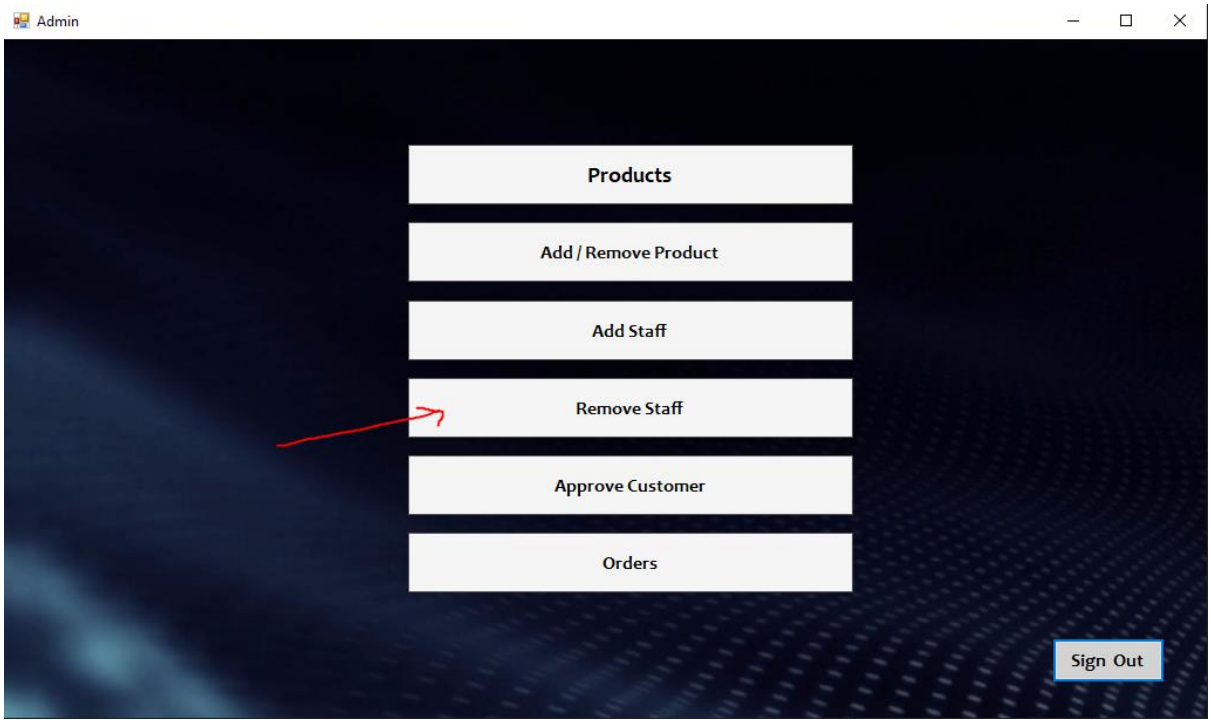
Email
Password
Date of Birth
2024-01-02
Male
Female
Other
Certification 1.
Add
Add Staff
Back
Sign Out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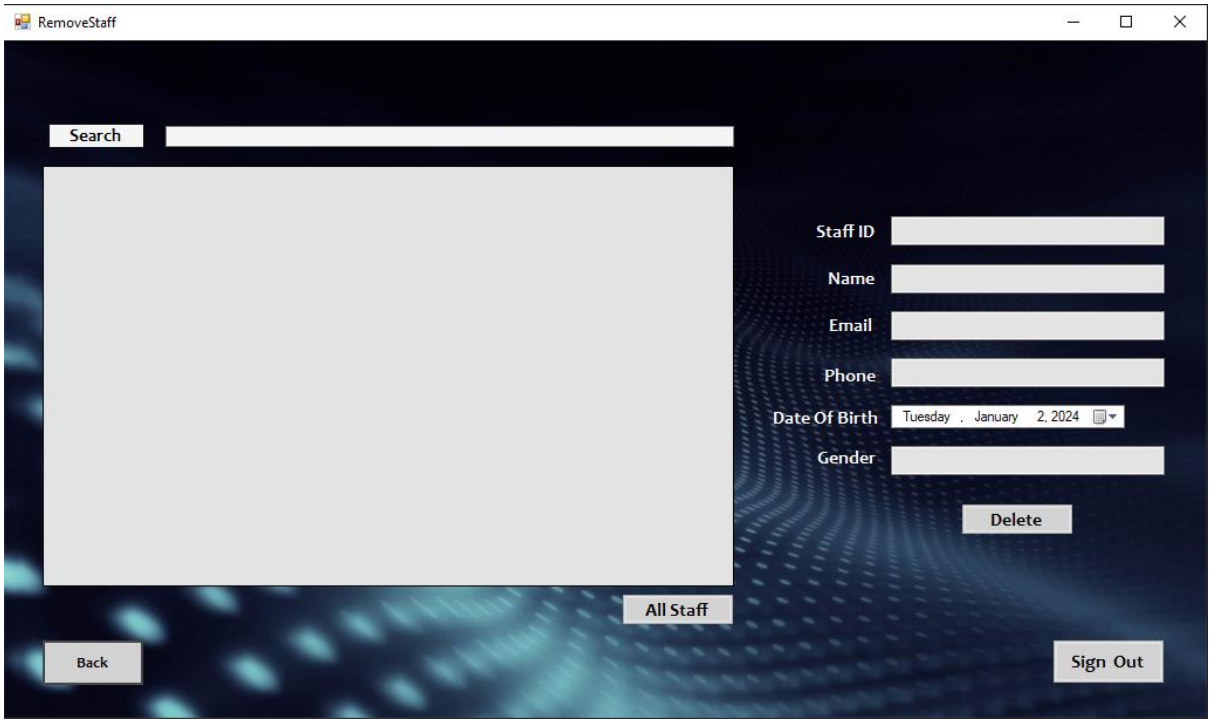
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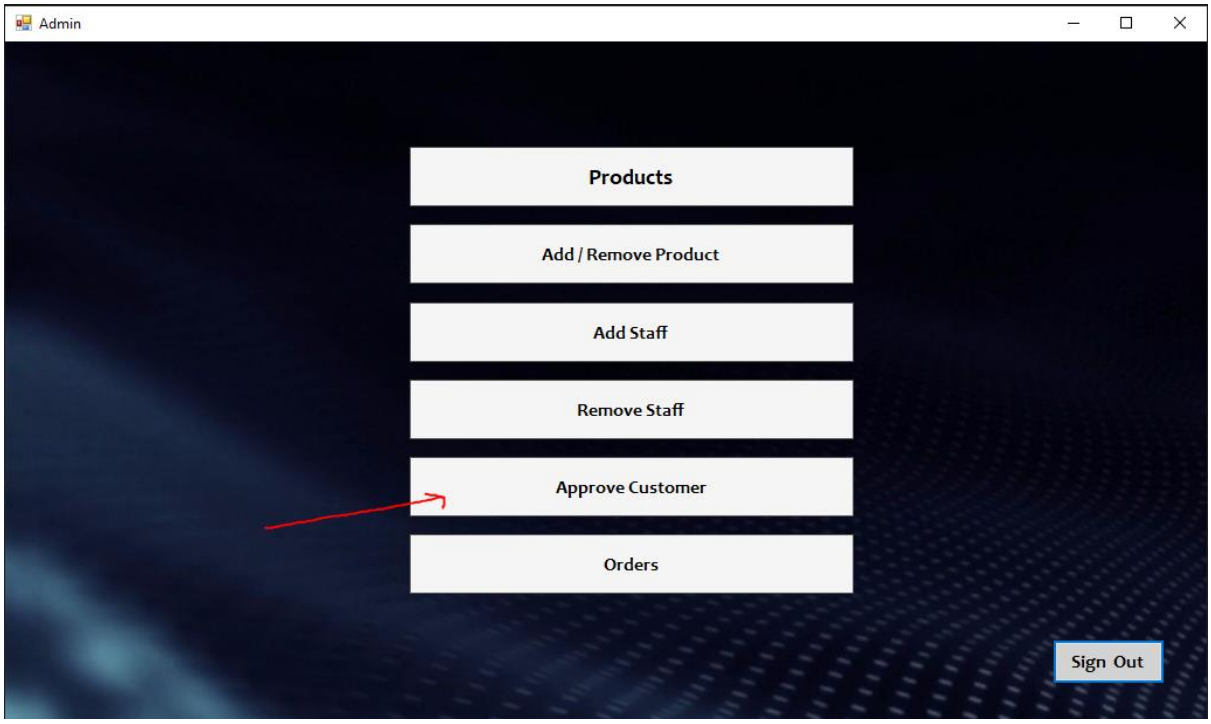
Phone
Date Of Birth
Tuesday , January 2, 2024
Gender
Delete
All Staff
Back
Sign Out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Remove Staff
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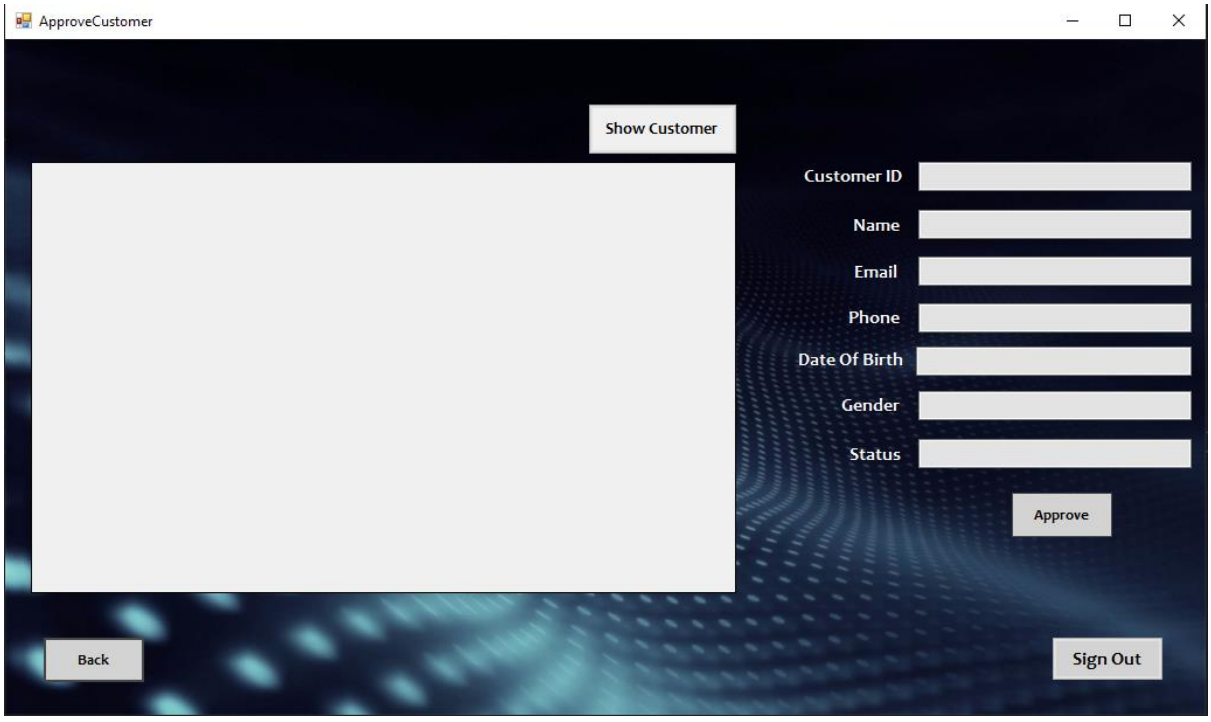
Orders
Sign Out


ApproveCustomer
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Date Of Birth
Gender
Status
Approve
Back
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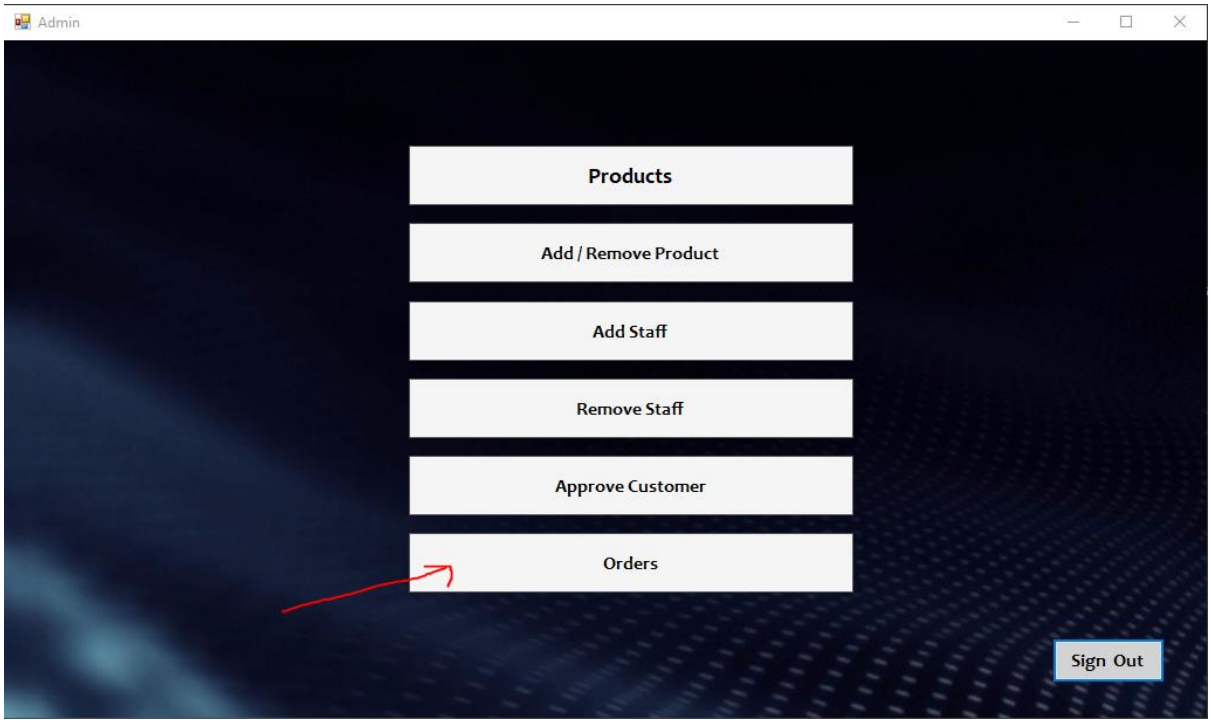
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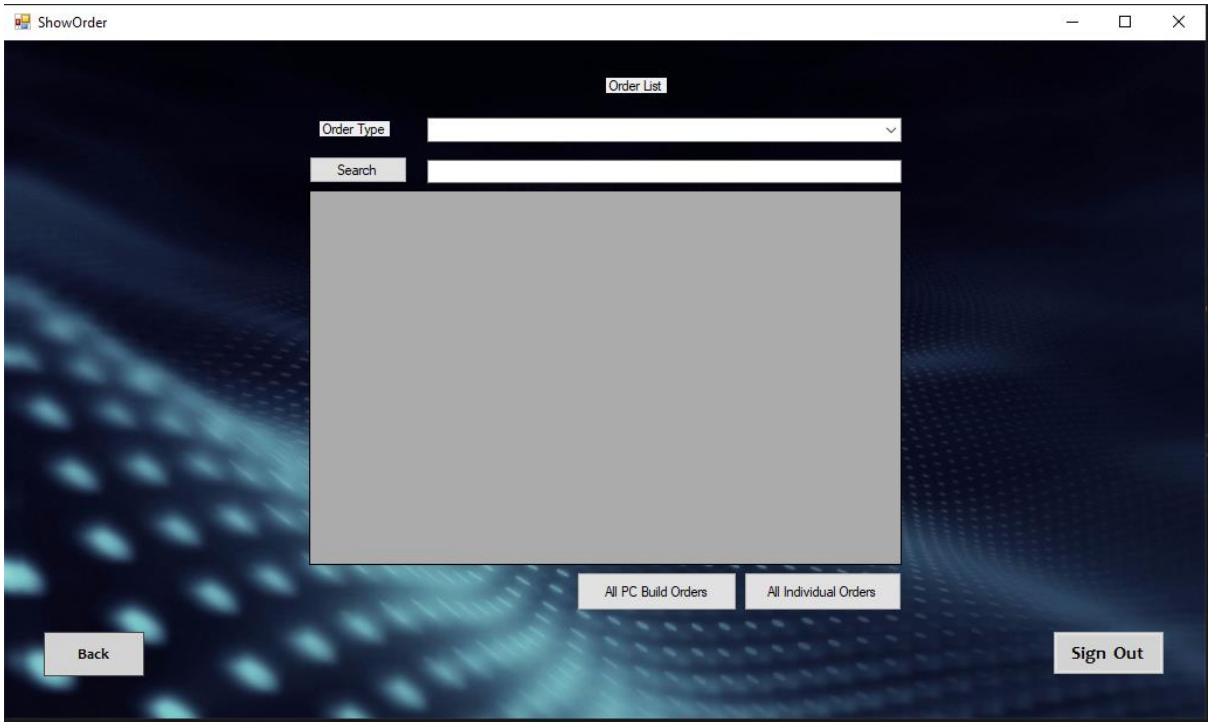
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Order Type
Search
All PC Build Orders
All Individual Orders
Back
Sign Out

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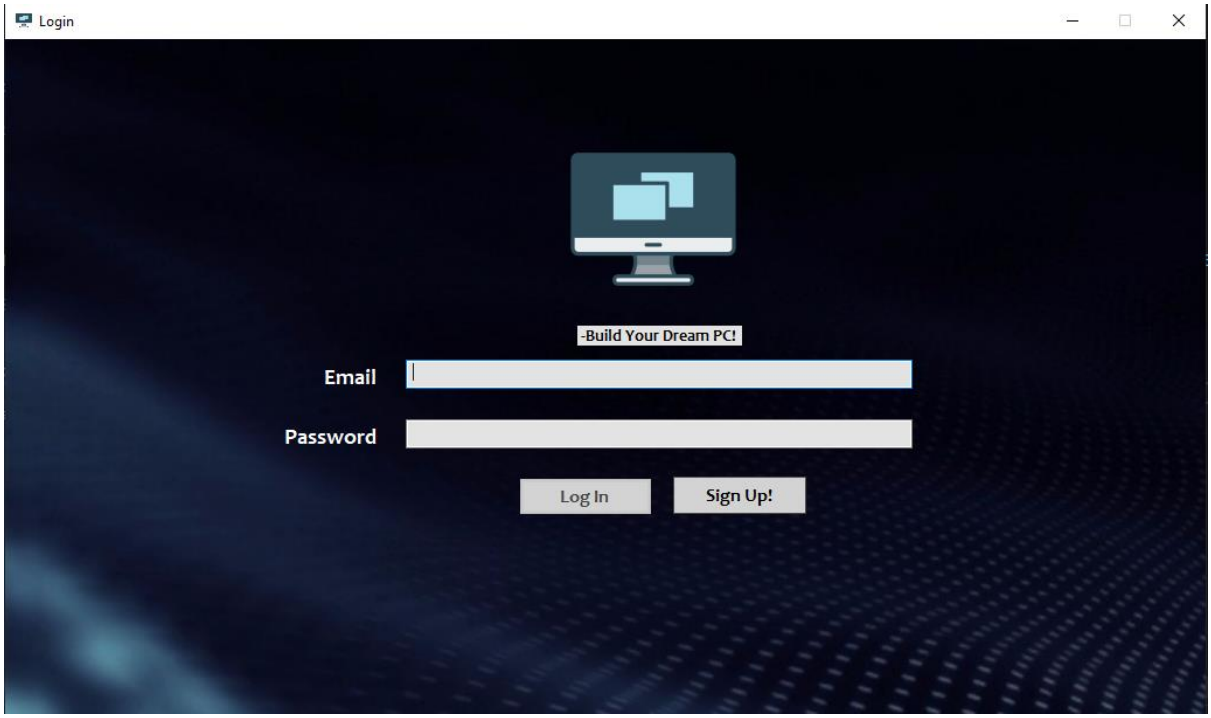
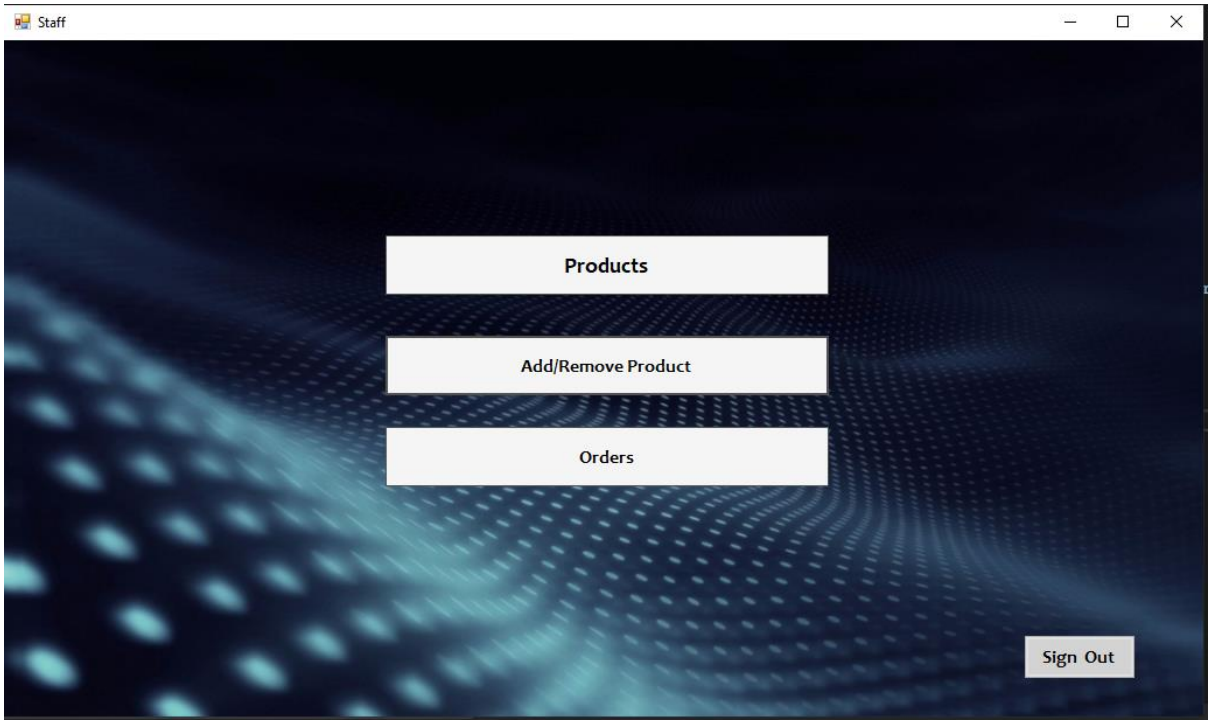

Login
-Build Your Dream PC!
Email
Password
Log In
Sign Up!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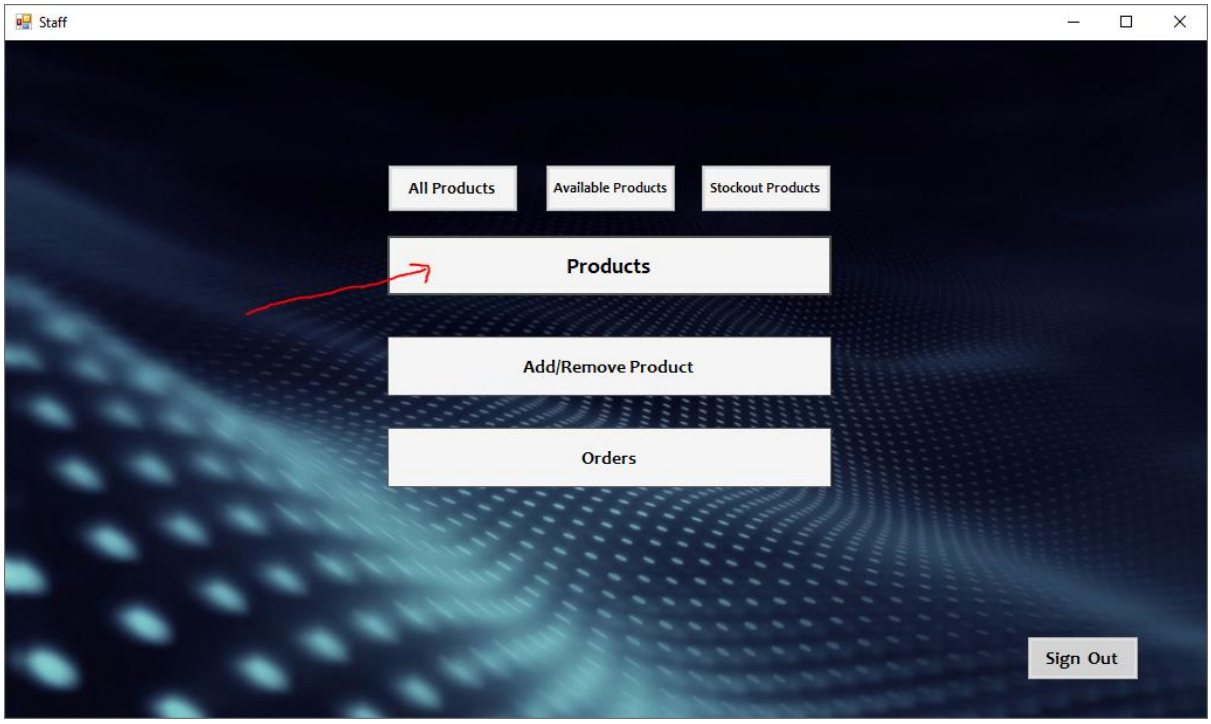
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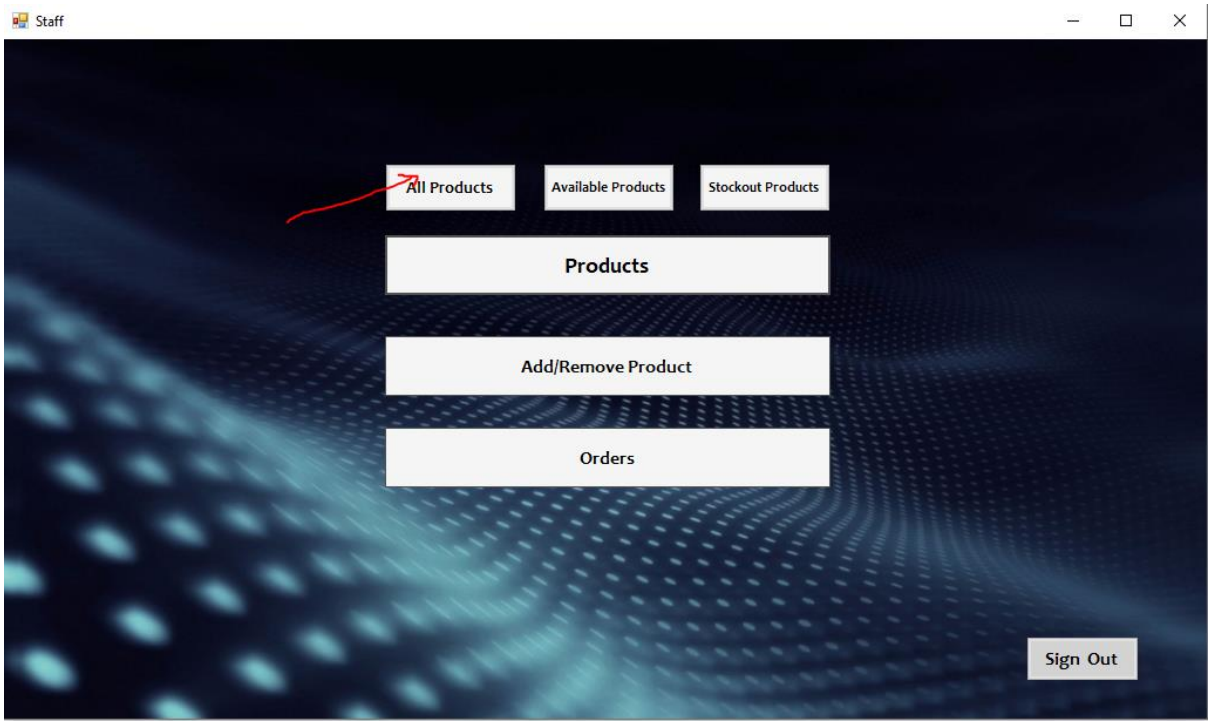
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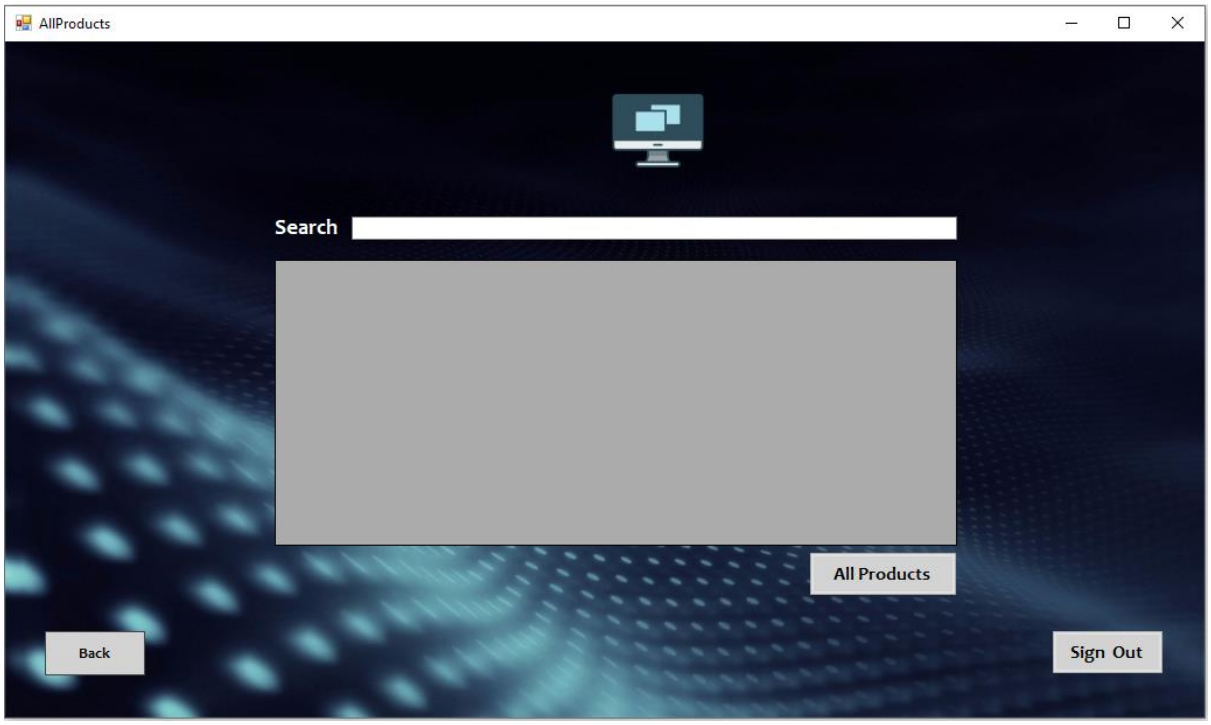
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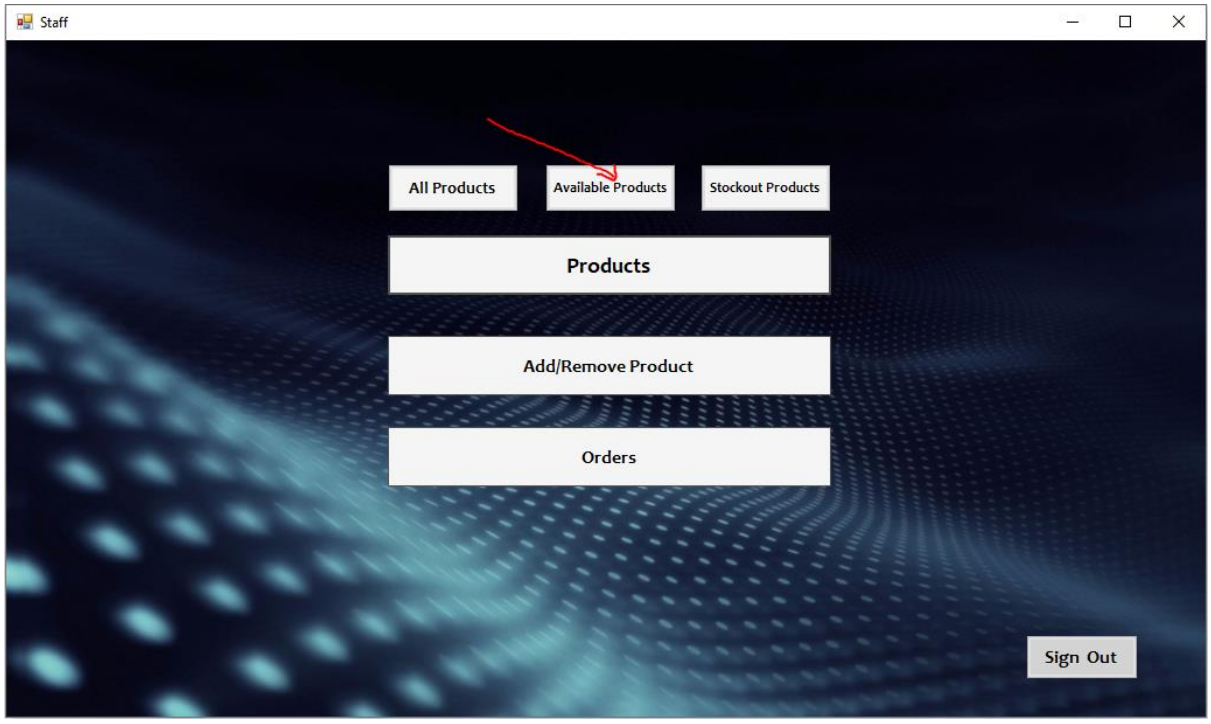
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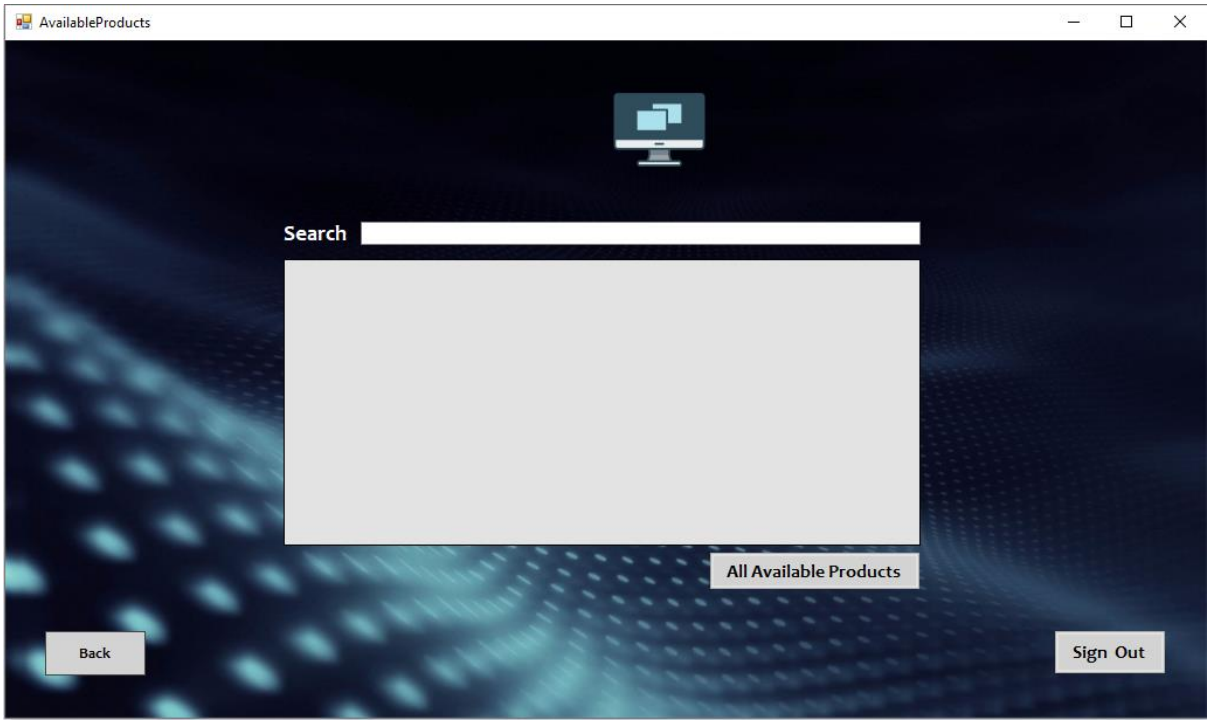
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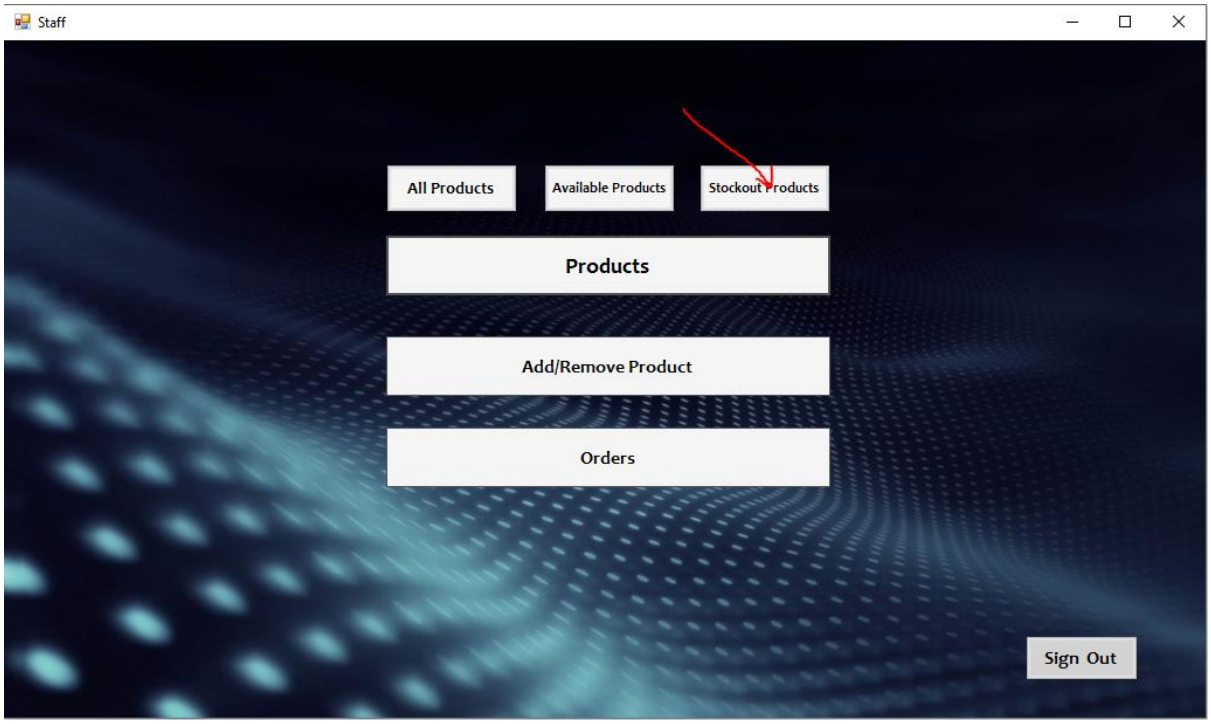
Staff
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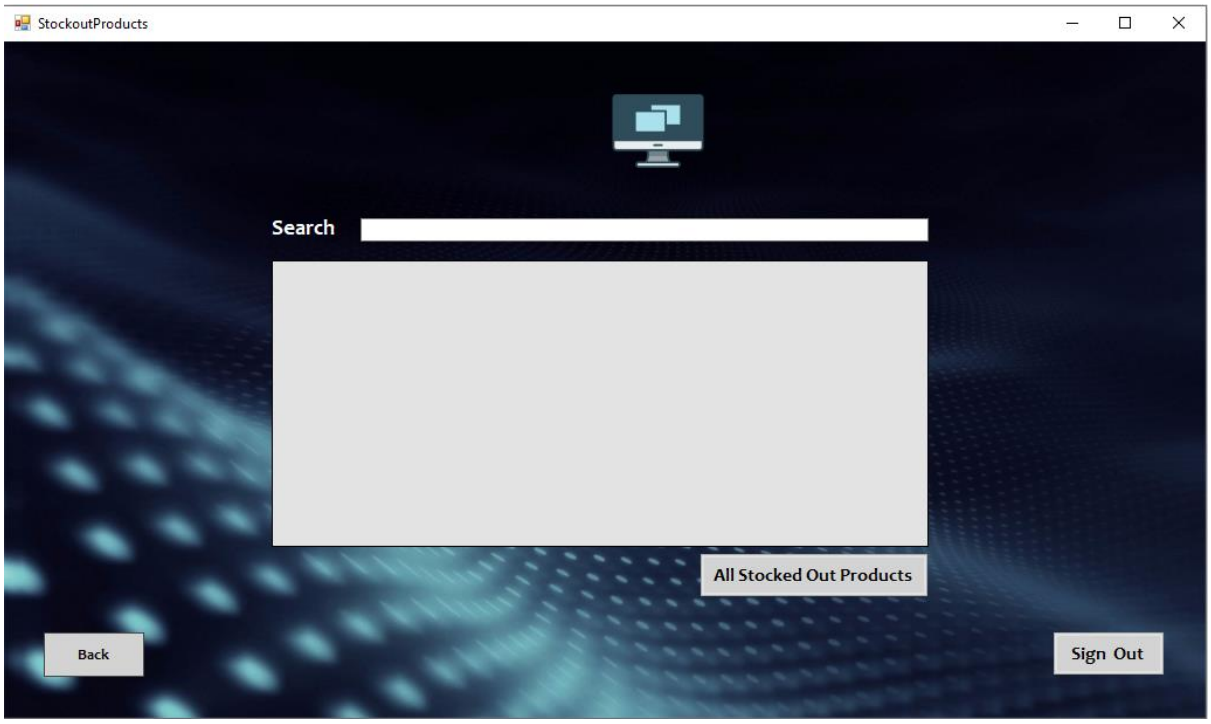
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All Stocked Out Products
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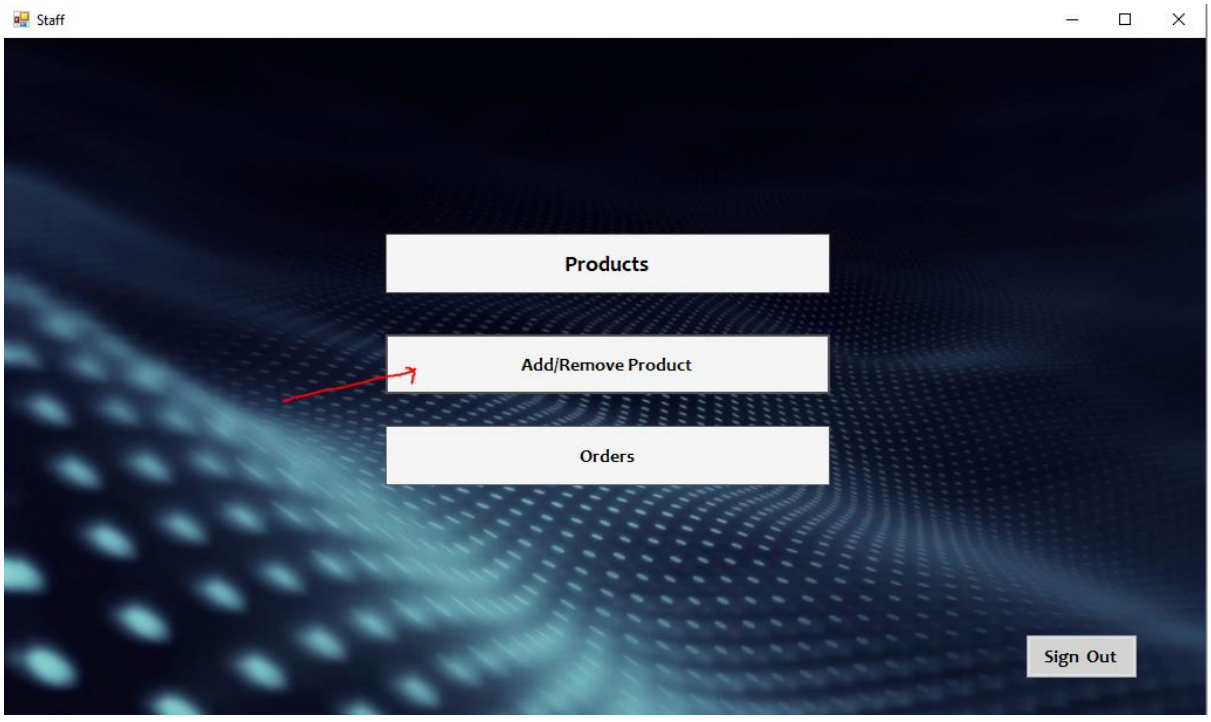
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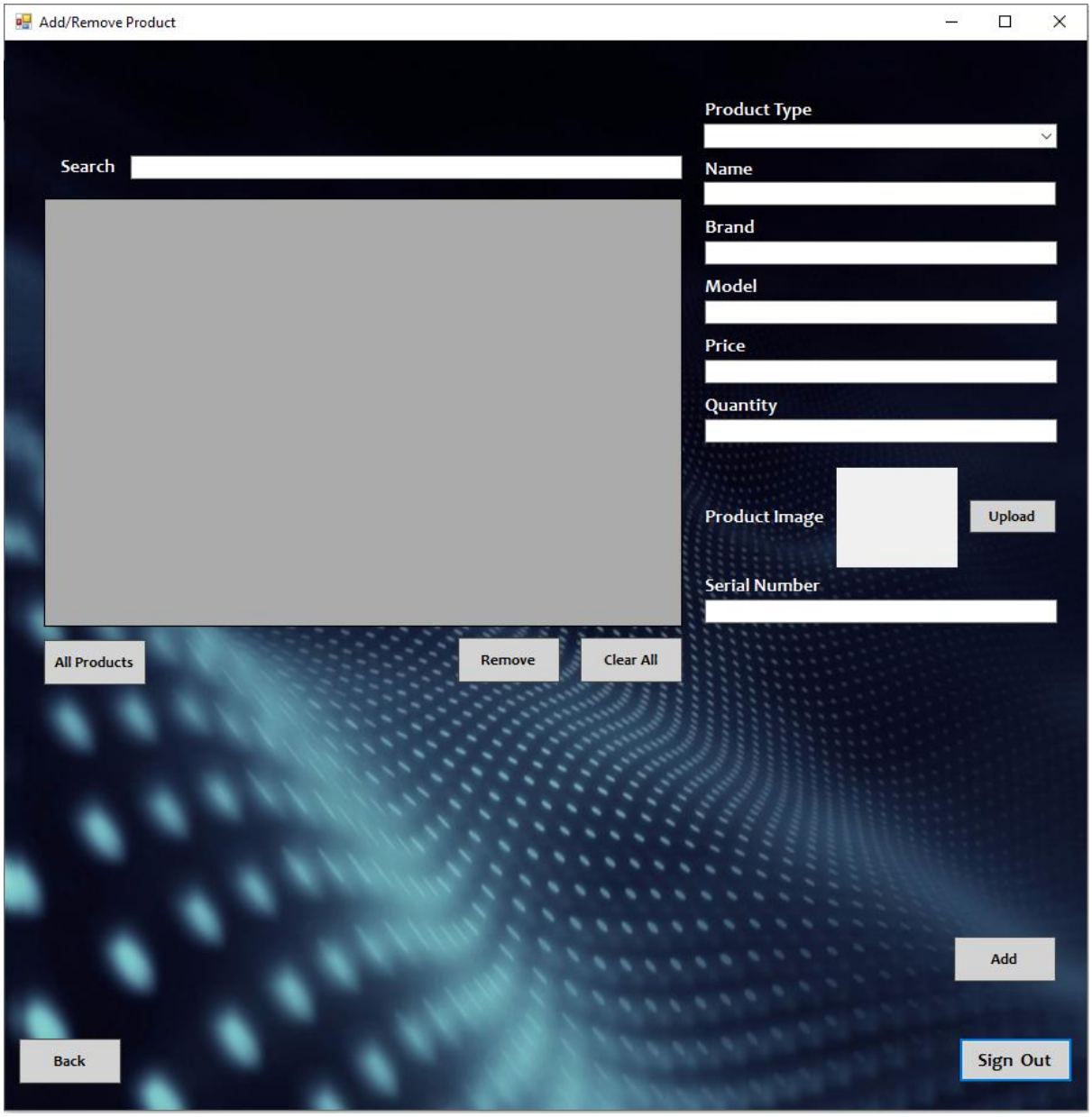
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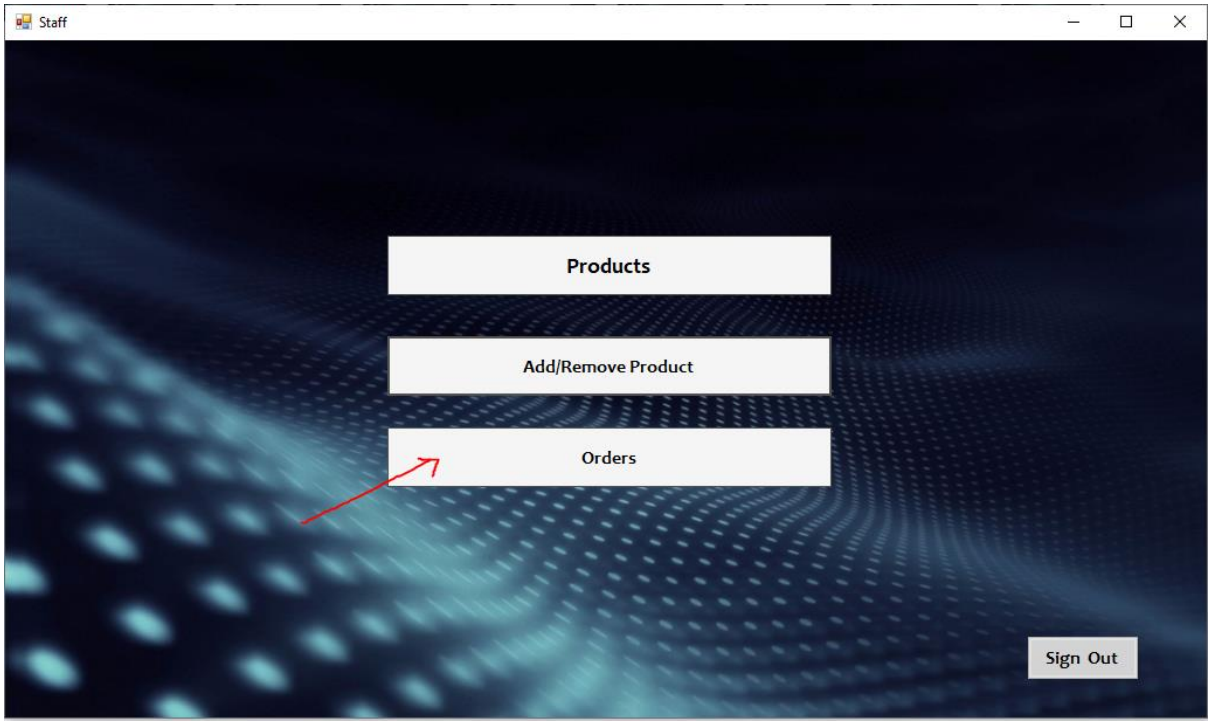
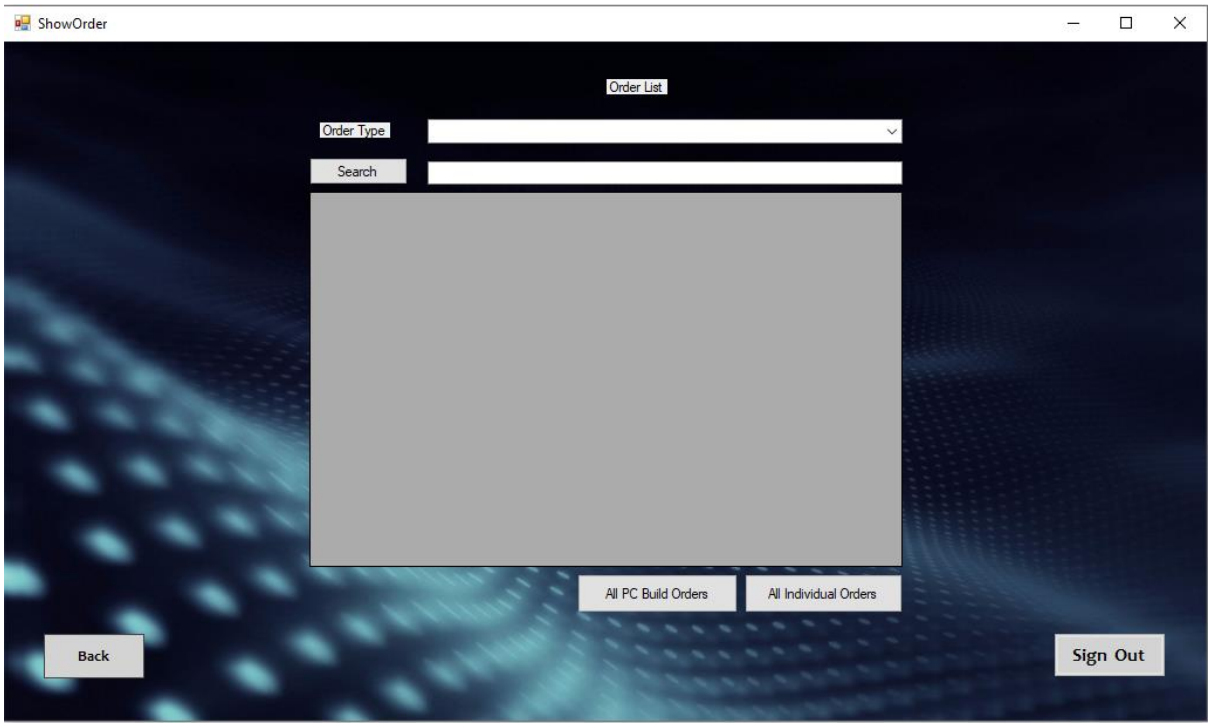
Quantity
Product Image
Upload
Serial Number
All Products
Remove
Clear All
Add
Back
Sign Out


Staff
Products
Add/Remove Product
Orders
Sign Out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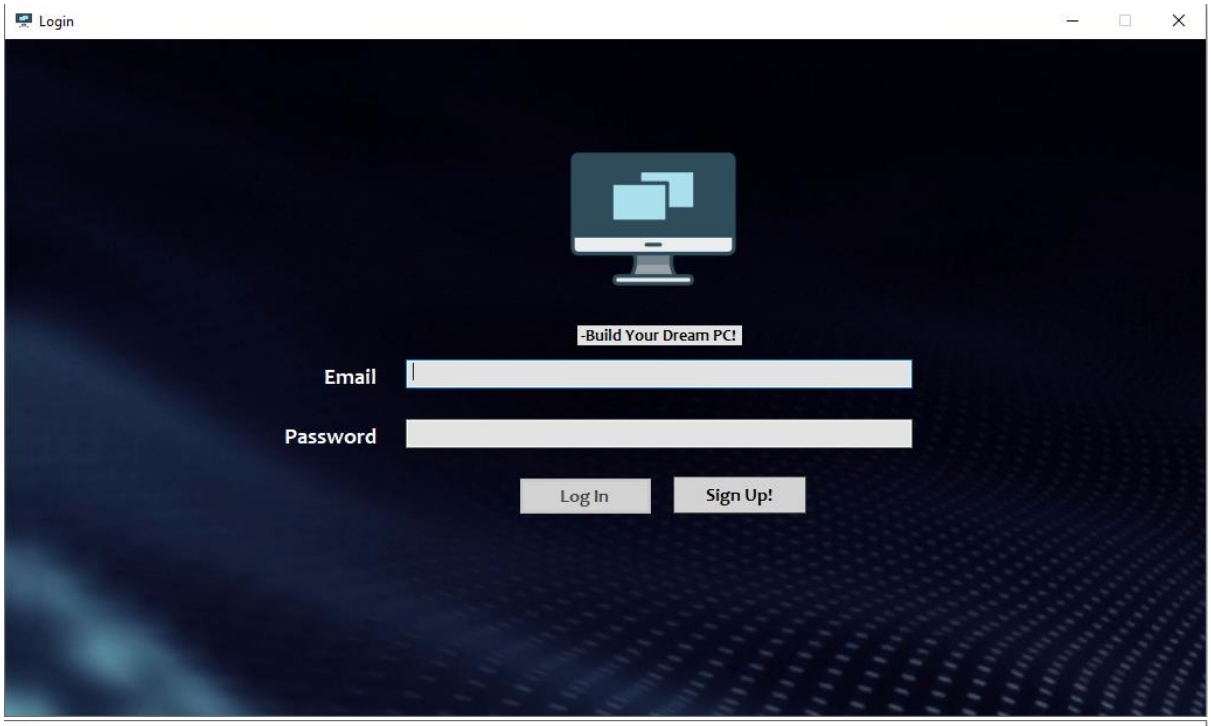
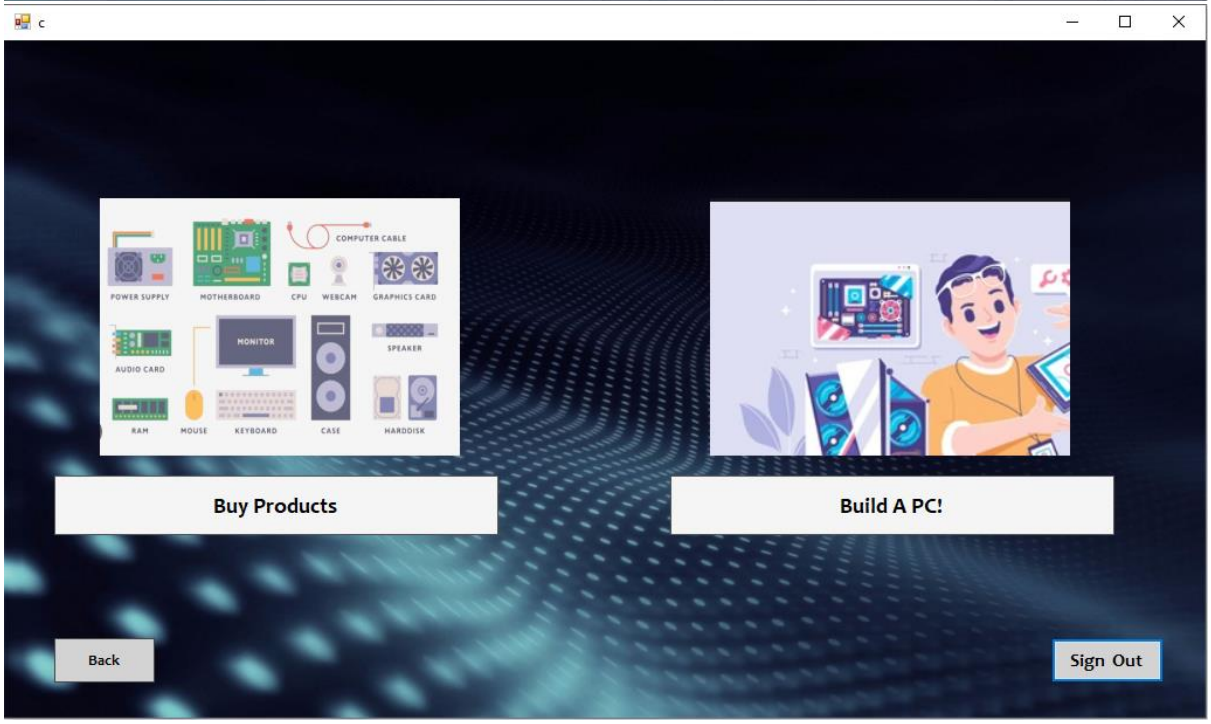
Order List
Order Type
Search
All PC Build Orders
All Individual Orders
Back
Sign Out

Customer :


Login
-Build Your Dream PC!
Email
Password
Log In
Sign Up!


c
POWER SUPPLY
MOTHERBOARD
COMPUTER CABLE
CPU
WEBCAM
GRAPHICS CARD
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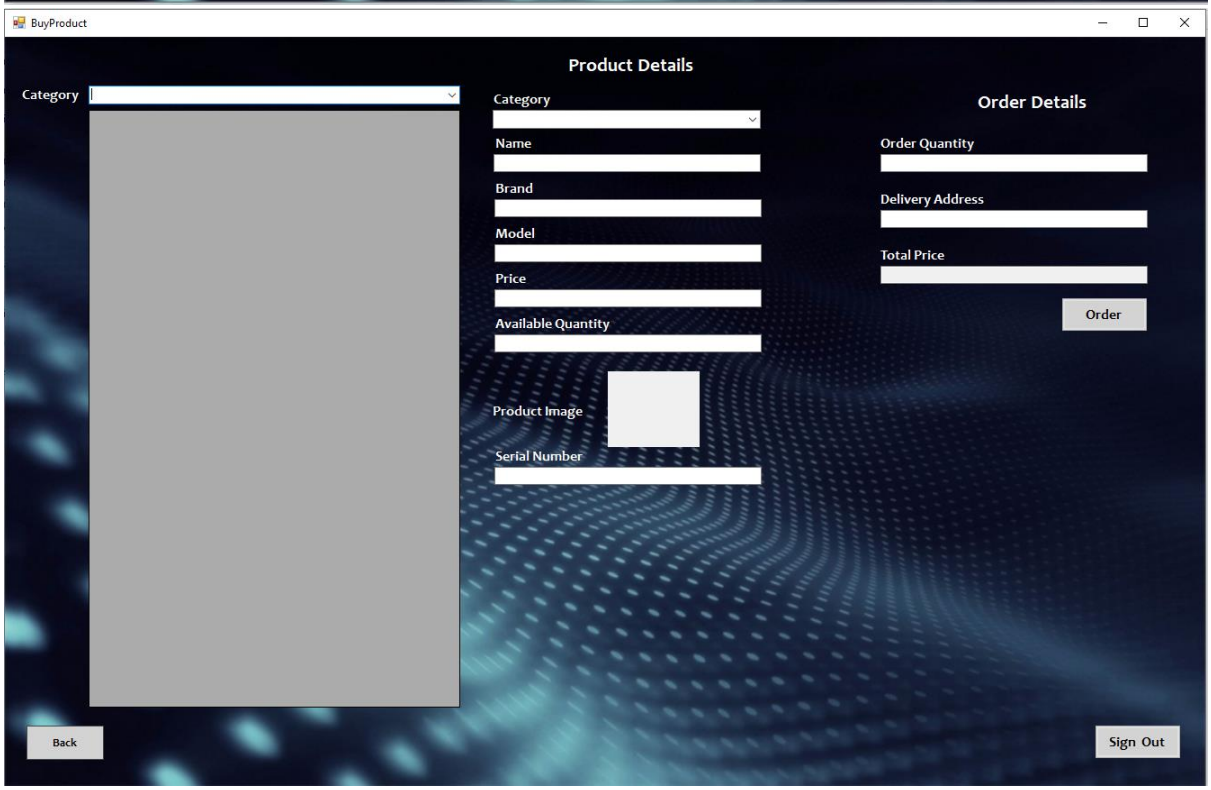
BuyProduct
Category
Product Details
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Model
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Product Image
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Order Details
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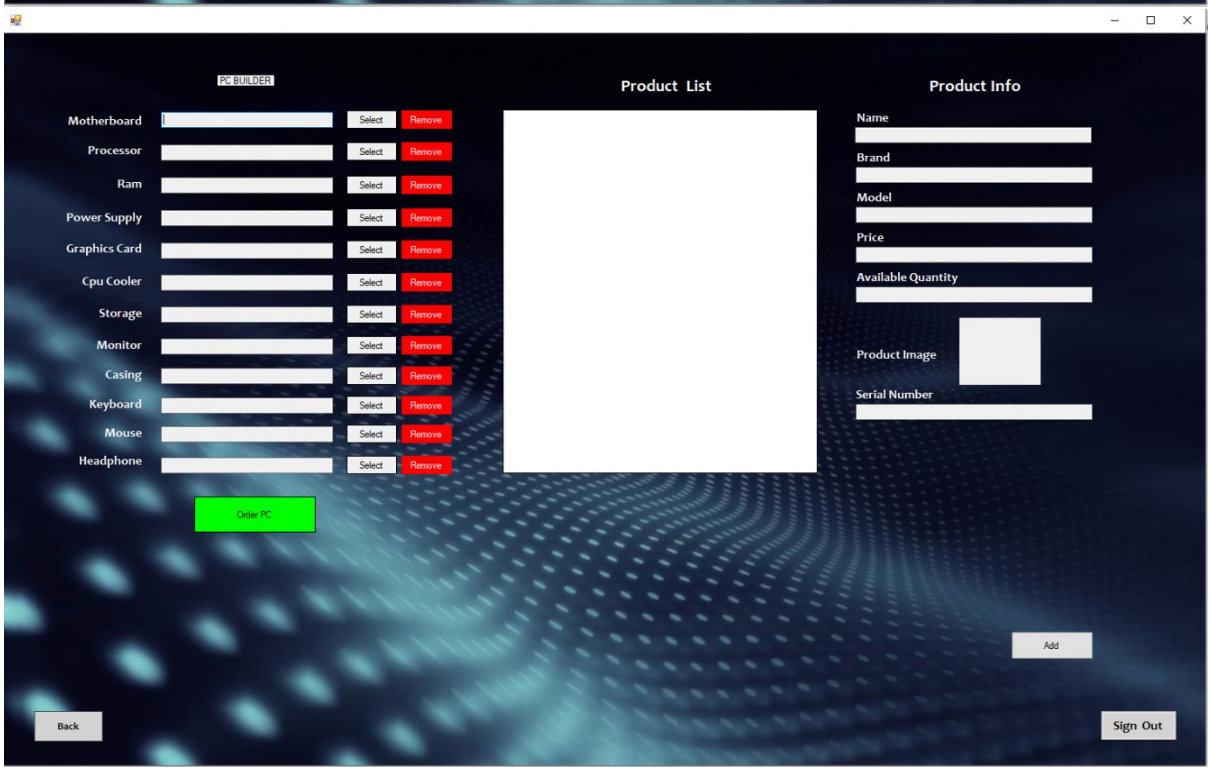
PC BUILDER
Product List
Product Info
Motherboard
Processor
Ram
Power Supply
Graphics Card
Cpu Cooler
Storage
Monitor
Casing
Keyboard
Mouse
Headphone
Select
Remove
Order PC
Name
Brand
Model
Price
Available Quantity
Product Image
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Data Dictionary

Login				
Key	Name	Data Type	Length	Nullable
Primary	Email	VARCHAR	50	No
	Password	VARCHAR	50	No
	Role	VARCHAR	10	No
	Status	BIT		No

Admin				
Key	Name	Data Type	Length	Nullable
Primary	AdminID	INTEGER		No
	Name	VARCHAR	50	No
	Phone	VARCHAR	50	No
	DOB	DATE		No
	Gender	VARCHAR	6	No
	Email	VARCHAR	50	No

Staff				
Key	Name	Data Type	Length	Nullable
Primary	StaffID	INTEGER		No
	Name	VARCHAR	50	No
	Phone	VARCHAR	50	No
	DOB	DATE		No
	Gender	VARCHAR	6	No
	Email	VARCHAR	50	No
	Certificate1	VARCHAR	200	Yes
	Certificate2	VARCHAR	200	Yes
	Certificate3	VARCHAR	200	Yes
	Certificate4	VARCHAR	200	Yes
	Certificate5	VARCHAR	200	Yes

Customer				
Key	Name	Data Type	Length	Nullable
Primary	CustomerID	INTEGER		No
	Name	VARCHAR	50	No
	Phone	VARCHAR	50	No
	DOB	DATE		No
	Gender	VARCHAR	6	No
	Email	VARCHAR	50	No

Product				
Key	Name	Data Type	Length	Nullable
	ProductID	INTEGER		No
	ProductType	VARCHAR	20	No
	Brand	VARCHAR	20	No
	Model	VARCHAR	30	No
	Name	VARCHAR	50	No
	Price	INTEGER		No
	AvailableQuantity	INTEGER		No
	ProductImage	VARCHAR	500	Yes
Primary	SerialKey	VARCHAR	50	No

Motherboard				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	FormFactor	VARCHAR	20	No
	Pin	VARCHAR	15	No

Processor				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	Generation	VARCHAR	20	No
	Pin	VARCHAR	15	No
	FloorSpeed	VARCHAR	20	No
	CeilingSpeed	VARCHAR	20	No
	RamGeneration	VARCHAR	20	No

Ram				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	Generation	VARCHAR	20	No
	BusSpeed	VARCHAR	20	No
	Memory	VARCHAR	20	No

Ram				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	Distributor	VARCHAR	20	No
	Generation	VARCHAR	20	No
	Memory	VARCHAR	20	No
	WattageRequirement	INTEGER		No

Casing				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	FormFactor	VARCHAR	20	No
	TotalFanSlot	INTEGER		No
	IncludedFanSlot	INTEGER		No

Monitor				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	Resolution	VARCHAR	30	No
	RefreshRate	VARCHAR	15	No
	Panel	VARCHAR	20	No
	ResponseTime	VARCHAR	20	No
	ScreenSize	VARCHAR	20	No

Storage				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	StorageType	VARCHAR	10	No
	Memory	VARCHAR	20	No
	RPM	VARCHAR	20	No

CpuCooler				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	CoolerType	VARCHAR	20	No
	Size	VARCHAR	20	No
	ProcessorBrand	VARCHAR	20	No
	FanSpeed	VARCHAR	20	No

PowerSupply				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	FormFactor	VARCHAR	20	No
	Wattage	INTEGER		No
	Certification	VARCHAR	20	No

Mouse				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	Type	VARCHAR	20	No
	Switch	VARCHAR	20	No

Storage				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	Type	VARCHAR	20	No
	Switch	VARCHAR	20	No
	FormFactor	VARCHAR	20	No

Headphone				
Key	Name	Data Type	Length	Nullable
Foreign	SeirialKey	VARCHAR	50	No
	Type	VARCHAR	20	No
	PortType	VARCHAR	20	No
	Sensitivity	VARCHAR	20	No

Order				
Key	Name	Data Type	Length	Nullable
	ProductType	VARCHAR	20	No
	ProductName	VARCHAR	50	No
	Price	INTEGER		No
	Quantity	INTEGER		No
	TotalPrice	INTEGER		No
	SerialKey	VARCHAR	50	No
	DeliveryAddress	VARCHAR	200	No
	OrderDate	DATE		No
Foreign	CustomerID	INTEGER		No

OrderPCB				
Key	Name	Data Type	Length	Nullable
	PCBID	INTEGER		No
	MotherboardSerial	VARCHAR	50	No
	ProcessorSerial	VARCHAR	50	No
	Ram1SerialSerial	VARCHAR	50	No
	Ram2SerialSerial	VARCHAR	50	Yes
	Ram3SerialSerial	VARCHAR	50	Yes
	Ram4SerialSerial	VARCHAR	50	Yes
	PowerSupplySerial	VARCHAR	50	No
	GraphicsCardSerial	VARCHAR	50	Yes
	CpuCoolerSerial	VARCHAR	50	Yes

	StorageSerial	VARCHAR	50	No
	MonitorSerial	VARCHAR	50	Yes
	CasingSerial	VARCHAR	50	Yes
	KeyboardSerial	VARCHAR	50	Yes
	MouseSerial	VARCHAR	50	Yes
	HeadphoneSerial	VARCHAR	50	Yes
	OrderDate	DATE		No
Foreign	CustomerID	INTEGER		No