**Business: GamerStop**
Project Group 96
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## Website: http://flip4.engr.oregonstate.edu:51598/

*must be connected to OSU VPN to connect to flip servers*

*Submitted on 12/11/2023*

## Executive Summary

The recent system updates encompassed a range of improvements aimed at refining both the functionality and user interface over the course of the semester

1. **Product Page Changes:**
   a. Consolidated console and video game product entries into a unified form.
   b. Enabled users to specify a Null value when adding a single product to the database.
2. **CRUD Functionality Improvements:**
   a. Resolved issues causing server crashes when a single apostrophe was added to an input value. Changes to app.js and entity views by replacing single quotes with double quotes in SELECT parameters to prevent unwanted crashes
3. **User Interface:**
   a. Introduced a confirmation window for delete buttons to prevent accidental item deletion.
   b. Added "toggle" feature to allow a user to toggle / un-toggle the edit button if selected again
   c. Fixed Date display by only showing date and not datetime
   d. Implemented dynamic dropdowns for improved selection processes for consoleID and productID.
   e. Addressed a "required" attribute issue for dates if a user attempted to edit/ update to prevent date resetting to 0.
   f. Modified price attributes to decimal (6,2) to accommodate price values > $1000
   g. Made cosmetic UI changes and added alerts to notify users of data updates or deletions.
4. **User-Friendly Attributes and IDs:**
   a. Recommended placeholders for customer information, e.g., "telephone," to specify phone number style format
   b. Set IDs as read-only during the edit option to maintain consistency.
   c. Ensured consistency between camelCase and snake case for attributes in entity tables.
   d. Added feature to display all items when editing an item in an entity page

These updates were iterated over the course of the semester and we have made consistent changes throughout the semester in order to employ a better overall user experience and functioning database system for GamerStop.

# Project Outline and Database Outline, ERD Schema & Sample Data Updated Version

GamerStop is a family owned, brick and mortal retail shop that focuses on selling video games to its customers. On average, they sell about 150 video games a month and are having a difficult time keeping track of their general inventory and sales records. Their primary products include consoles from the 3 main manufacturers including: Macrosoft, Phony, and Mintendo, plus 1000's of video games that work for those consoles.

The owner is having a hard time keeping track of all the sales, customers, and inventory that are currently in the storefront and is looking for a database system to manage all of this. The company would like to keep track of the following: ***Customers***, ***Invoices, Products, Consoles, Video_games.***

**Database Outline, in Words**

1) **Customers**: records details of the customers who shop at Gamerstop
   - **customerID**: int, auto- increment,  unique, not NULL, PK
   - **email**: varchar(50), not NULL
   - **firstName**: varchar(50), not NULL
   - **lastName**: varchar(50), not NULL
   - **phone**: decimal(10), not NULL
     o **Relationship**: 1:M relationship between customer and invoices is implemented with customerID as FK in invoices.
2) **Invoices**: keeps a record of the customer orders
   - **invoiceID**: int, auto-increment, unique, not NULL, PK
   - **customerID**: int, FK reference Customers(customerID)
   - **orderDate**: datetime, not NULL
   - **totalPrice**: decimal(6,2), not NULL
     o **Relationship**: M:N relationship between invoice and product & M:1 between invoice and customer, with customer as FK in invoice
3) **Invoices_has_Products**: intersection table (lookup table) to reflect M:N relationship between Invoices and Products. Prevents redundancy for M:N relationship between Invoices and Products
   - **invoiceProductID:** int(255) PK, not NULL

- **invoiceID**: int(255) FK reference Invoices(invoiceID)
- **productID**: int(255) FK reference Products(productID)

4) **Products:** Record the details of each product
- **productID**: int, auto-increment, unique, not NULL, PK
- **price**: decimal(6,2), not NULL
- **consoleID**: int(25): foreign key reference to Console Table with consoleID
- **videogameID**: int(3000): foreign key reference to Video_Games table with videoGameID
- **Relationship**:
  - M:N relationship with the invoice. There can be multiple products that can be associated with different invoices, and the same product can be purchased by different invoices. 1:M relationship between product and video game. 1:M relationship between product and console.
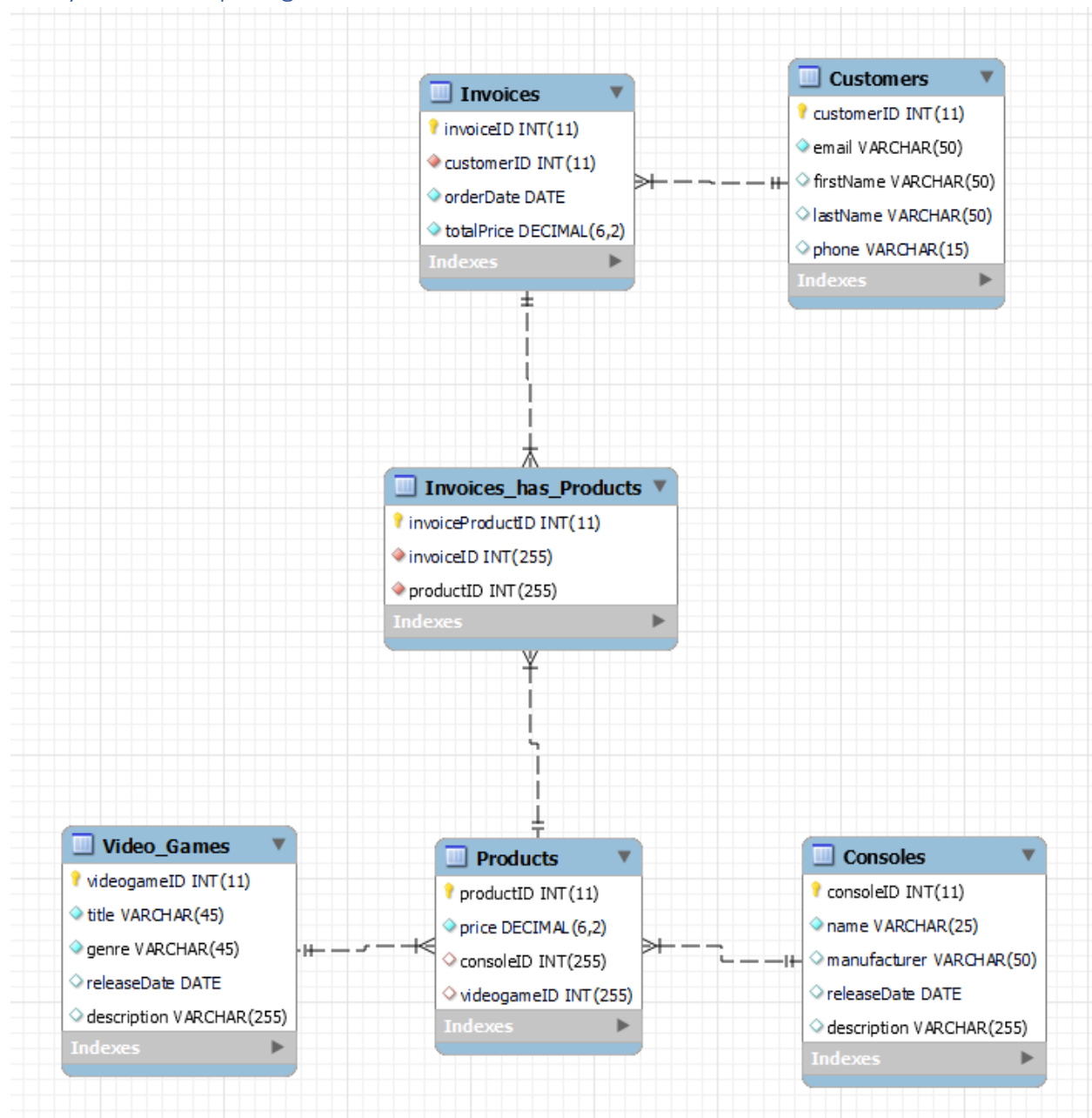
D. **Video_Games**: keeps track of all the current video game inventory for GamerStop.
- **videogameID**: int, auto-increment, unique, not NULL, PK
- **title**: varchar (50), not NULL
- **genre:** varchar(50), not NULL
- **releaseDate:** date, not NULL
  - **description**: varchar (255). Describes the basics of the product
    - **Relationship**: 1:M relationship between video_game and product

E. **Consoles:** keeps track of all the game consoles inventory for GamerStop. Will include manufacturers that have produced various generational models of their consoles
- **consoleID:** int, ai, unique, not NULL, PK
- **name**: varchar(15) not NULL
- **manufacturer** : varchar (50) not NULL
- **releaseDate**: date not NULL
  - **description**: varchar (255) not NULL. Describes the basics of the product
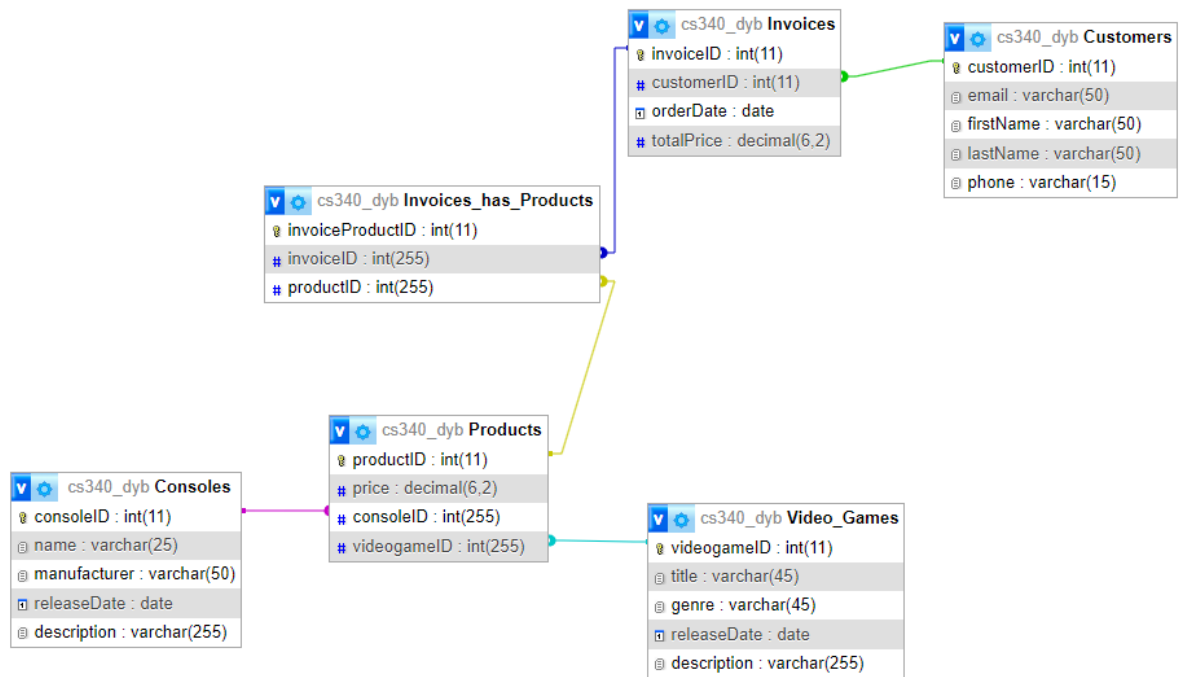    - **Relationship**: 1:M relationship between console and product

# Entity Relationship Diagram

**Invoices**
- invoiceID INT(11)
- customerID INT(11)
- orderDate DATE
- totalPrice DECIMAL(6,2)
- Indexes

**Customers**
- customerID INT(11)
- email VARCHAR(50)
- firstName VARCHAR(50)
- lastName VARCHAR(50)
- phone VARCHAR(15)
- Indexes

**Invoices_has_Products**
- invoiceProductID INT(11)
- invoiceID INT(255)
- productID INT(255)
- Indexes

**Video_Games**
- videogameID INT(11)
- title VARCHAR(45)
- genre VARCHAR(45)
- releaseDate DATE
- description VARCHAR(255)
- Indexes

**Products**
- productID INT(11)
- price DECIMAL(6,2)
- consoleID INT(255)
- videogameID INT(255)
- Indexes

**Consoles**
- consoleID INT(11)
- name VARCHAR(25)
- manufacturer VARCHAR(50)
- releaseDate DATE
- description VARCHAR(255)
- Indexes

# Schema

**cs340_dyb Invoices**
- 🔑 invoiceID : int(11)
- # customerID : int(11)
- ▫ orderDate : date
- # totalPrice : decimal(6,2)

**cs340_dyb Customers**
- 🔑 customerID : int(11)
- ▫ email : varchar(50)
- ▫ firstName : varchar(50)
- ▫ lastName : varchar(50)
- ▫ phone : varchar(15)

**cs340_dyb Invoices_has_Products**
- 🔑 invoiceProductID : int(11)
- # invoiceID : int(255)
- # productID : int(255)

**cs340_dyb Products**
- 🔑 productID : int(11)
- # price : decimal(6,2)
- # consoleID : int(255)
- # videogameID : int(255)

**cs340_dyb Consoles**
- 🔑 consoleID : int(11)
- ▫ name : varchar(25)
- ▫ manufacturer : varchar(50)
- ▫ releaseDate : date
- ▫ description : varchar(255)

**cs340_dyb Video_Games**
- 🔑 videogameID : int(11)
- ▫ title : varchar(45)
- ▫ genre : varchar(45)
- ▫ releaseDate : date
- ▫ description : varchar(255)

## Example Data

**Customers:**

| customerID | email | firstName | lastName | phone |
|---|---|---|---|---|
| 1 | abc@gmail.com | Gordon | Wilcox | 620-977-1538 |
| 2 | wxy@outlook.com | Samson | Barton | 661-335-1004 |
| 3 | gg@oregonstate.edu | Kade | Oneal | 360-503-2238 |

**Invoices:**

| invoiceID | customerID | orderDate | totalPrice |
|---|---|---|---|
| 1 | 2 | 2023-07-26 00:00:00 | 129.99 |
| 2 | 3 | 2023-09-08 00:00:00 | 44.59 |
| 3 | 1 | 2023-10-01 00:00:00 | 599.98 |

**Invoices_has_Products:**

| invoiceProductID | invoiceID | productID |
|---|---|---|
| 1 | 1 | 1 |
| 2 | 2 | 3 |
| 3 | 3 | 2 |
| 4 | 3 | 4 |

**Products:**

| productID | price | consoleID | videogameID |
|---|---|---|---|
| 1 | 129.99 | 1 | NULL |
| 2 | 549.99 | 2 | NULL |
| 3 | 44.59 | NULL | 1 |
| 4 | 50.49 | NULL | 2 |
| 5 | 199.99 | 3 | NULL |
| 6 | 23.99 | NULL | 3 |

**Video_Games:**

| videogameID | title | genre | releaseDate | description |
|---|---|---|---|---|
| 1 | Galactic Warfare: Mars | Action | 2019-02-03 | First-person shooter against alien |
| 2 | Fantasy Quest | Adventure | 2021-07-28 | Fantasy adventure RPG |
| 3 | CyberRift | Survival | 2015-05-16 | Explore and survive the futuristic wildland |

**Consoles:**

| consoleID | name | manufacturer | releaseDate | description |
|---|---|---|---|---|
| 1 | YBox Series Y | Macrosoft | 2019-02-23 | Unprecedented gaming experience for everyone |
| 2 | QuantumStation | Phony | 2020-02-02 | The ultimate gaming console for daily leisure |
| 3 | NovaX | Mintendo | 2023-01-31 | Powerful and convenient gaming console |

## UI Screen Shots with Titles

Homepage
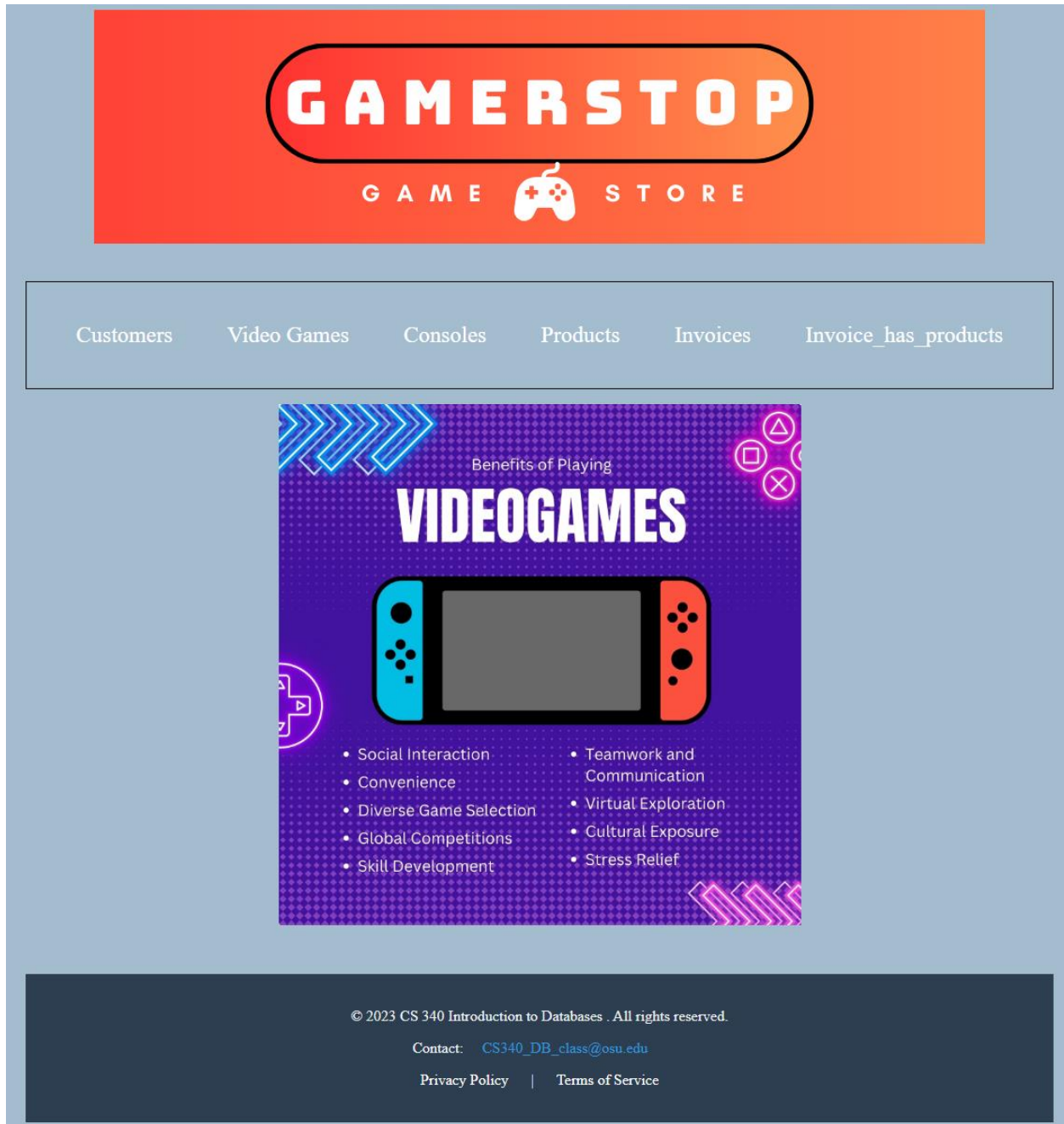
Customers (ADD NEW CUSTOMERS/ READ/ UPDATE/ DELETE)

| Customers | Video Games | Consoles | Products | Invoices | Invoice_has_products |

## Here are your current Customers

| customerID | Email | First_Name | Last_Name | Phone | Edit | delete |
|---|---|---|---|---|---|---|
| 1 | abc@gmail.com | Gordon | Wilcox | 620-977-1538 | Edit Customer | Delete Customer |
| 2 | wxy@outlook.com | Samson | Barton | 661-335-1004 | Edit Customer | Delete Customer |
| 3 | gg@oregonstate.edu | Kade | Oneal | 360-503-2238 | Edit Customer | Delete Customer |

## Add New Customers

To add a new person, enter their information and click on "Submit"

Email:
abc@test.com

First Name:
David

Last Name:
Kerts

Phone:
123-456-7890

Submit

Video Games (ADD VIDEO GAME/ READ/ UPDATE/ DELETE)

| Customers | Video Games | Consoles | Products | Invoices | Invoice_has_products |

## Showing current Video Games

| videogameID | title | genre | releaseDate | description | Edit | Delete |
|---|---|---|---|---|---|---|
| 1 | Galactic Warfare: Mars | Action | 2019-02-03 | First-person shooter against alien | Edit Game | Delete Game |
| 2 | Fantasy Quest | Adventure | 2021-07-28 | Fantasy adventure RPG | Edit Game | Delete Game |
| 3 | CyberRift | Survival | 2015-05-16 | Explore and survive the futuristic wildland | Edit Game | Delete Game |

## Add Video Game

Insert Information for the video game

Title:
Final Destiny 4

Genre:
RPG

Release Date:
01/01/2023

Description:
Enter description...

Submit

Consoles (ADD CONSOLE/ READ/ UPDATE/ DELETE)

| Customers | Video Games | Consoles | Products | Invoices | Invoice_has_products |

# Showing Current Consoles for the Store!

| consoleID | name | manufacturer | releaseDate | description | Edit Console | Delete |
|---|---|---|---|---|---|---|
| 1 | YBox Series Y | Macrosoft | 2019-02-23 | Unprecedented gaming experience for everyone | Edit Console | Delete Console |
| 2 | QuantumStation | Phony | 2020-02-02 | The ultimate gaming console for daily leisure | Edit Console | Delete Console |
| 3 | NovaX | Mintendo | 2023-01-31 | Powerful and convenient gaming console | Edit Console | Delete Console |

## Add new console to database

Insert console information

Console Name:

Legacy

Manufacturer:

Your Company

Release Date:

01/01/2020

Description:

Enter Description

Submit

## Products (ADD PRICE to a PRODUCT/ READ/ DELETE/ UPDATE)

**This section has nullable features to the dropdown list for adding an item. However, both items cannot be null otherwise it will crash as the code is not properly setup to handle 2 null values**

| Customers | Video Games | Consoles | Products | Invoices | Invoice_has_products |

## Showing current Products!

| productID | price | consoleID | videogameID | Edit Price | Delete Item |
|-----------|-------|-----------|-------------|------------|-------------|
| 1 | 129.99 | 1 | | Edit Price | Delete Item |
| 3 | 44.59 | | 1 | Edit Price | Delete Item |
| 4 | 50.49 | | 2 | Edit Price | Delete Item |
| 5 | 199.99 | 3 | | Edit Price | Delete Item |
| 6 | 23.99 | | 3 | Edit Price | Delete Item |
| 8 | 45.23 | | 1 | Edit Price | Delete Item |

## Add Product

Information on the price and select if the product is a console or if the product is a videogame.

**(Note: PRICE MUST BE IN decimal form or single digit values EXAMPLE: 34.99, 12)**

Price: [e.g. 34.99]   ConsoleID: [Select Console ID: ▾]   Video Game ID: [NULL ▾] [Submit]

Select Console ID:
NULL
YBox Series Y
QuantumStation
NovaX

Invoices (ADD INVOICE PRICE/ READ / UPDATE/ DELETE)

| Customers | Video Games | Consoles | Products | Invoices | Invoice_has_products |
|---|---|---|---|---|---|

## Showing current Invoice!

| invoiceID | customerID | Name | orderDate | totalPrice | Edit Invoice | Delete Invoice |
|---|---|---|---|---|---|---|
| 1 | 2 | Samson Barton | 2023-07-26 | 129.99 | Edit Invoice | Delete Invoice |
| 2 | 3 | Kade Oneal | 2023-09-08 | 44.59 | Edit Invoice | Delete Invoice |
| 3 | 1 | Gordon Wilcox | 2023-10-01 | 599.98 | Edit Invoice | Delete Invoice |

## Add Invoice

Add information to the invoice

Customer ID: [Select Customer ID: ▾]  Order Date: [mm/dd/yyyy 📅]  Total Price: [          ] [Submit]

## Invoice has Products

**This is our M:N relationship showing the many to many relationships between our products and our invoices ** Deleting an item from one entity such as from the productID will delete the item from the Invoice_has_products page.

| | Customers | Video Games | Consoles | Products | Invoices | Invoice_has_products |
|---|---|---|---|---|---|---|

| invoiceProductID | invoiceID | productID | productNameOrConsoleName | Edit Relation | Delete Relation |
|---|---|---|---|---|---|
| 1 | 1 | 1 | YBox Series Y | Edit Relation | Delete Relation |
| 2 | 2 | 3 | Galactic Warfare: Mars | Edit Relation | Delete Relation |
| 3 | 3 | 2 | QuantumStation | Edit Relation | Delete Relation |
| 4 | 3 | 4 | Fantasy Quest | Edit Relation | Delete Relation |

### Add Relation

Add information to the Relation

Invoice ID: [Select Invoice ID: ▾]    product ID: [Select product ID: ▾] [Submit]

## Showing current Products!

| productID | price | consoleID | videogameID | Edit Price | Delete Item |
|---|---|---|---|---|---|
| 1 | 129.99 | 1 | | Edit Price | Delete Item |
| 3 | 44.59 | | 1 | Edit Price | Delete Item |
| 4 | 50.49 | | 2 | Edit Price | Delete Item |

Deleting productID from the Products page will cascade delete the item as seen below.

| invoiceProductID | invoiceID | productID | productNameOrConsoleName | Edit Relation | Delete Relation |
|---|---|---|---|---|---|
| 1 | 1 | 1 | YBox Series Y | Edit Relation | Delete Relation |
| 2 | 2 | 3 | Galactic Warfare: Mars | Edit Relation | Delete Relation |
| 4 | 3 | 4 | Fantasy Quest | Edit Relation | Delete Relation |

All items pertaining to productID #2 have been deleted from the M:N relationship table