



REPORT

DATABASE PROJECT

Lecturer : Rikip Ginanjar



Group Members:

Member 1 : Devita Setyanirafi Fatimah CIT – 2023 (001202300046)

Member 2 : Sarahwati CIT – 2023 (001202300146)

BATCH 2023

PRESIDENT UNIVERSITY

Jababeka Education Park, Jl. Ki Hajar Dewantara, Kota Jababeka,

Cikarang Baru, Bekasi 17550 – Indonesia

Phone (021) 8910 9762-6, Fax (021) 8910 9768

PART A

CASE STUDY

A.1. Case Study Overview

A DVD game rental data management system is explained in detail in the DVD game rental business case study. It shows how game DVD rentals carefully keep track of the games they have in stock and carefully look at rental data. This analysis finds the data that supports these important functions and the rules that make sure the data is handled correctly and consistently.

This case study shows how DVD game rentals work by breaking down the data and showing how it can be changed. Understanding these details helps the game DVD rental improve its processes, find places where they can be made better, and eventually make its marketing and promotions more effective to bring in more customers.

The main things that a DVD game rental business does to reach its online and marketing goals are shown in the Business Functions in the DVD game rental web portfolio case study. A lot of these tasks depend on the data needs, business rules, and conceptual data modeling that were talked about earlier.

A.2. Business Function

1. **Game Collection Exhibition:** This feature shows off the DVD collection of games that can be found on the company's website. It shows the game's name, a short explanation, when it came out, and what platforms it works with.
Data Interaction: The Game Collection Exhibition depends on a lot of data about games, like the Title, Specifications, Category, Release Date, and Price. Keeping game displays true and appealing is important for getting new customers.

2. Web Portfolio Maintenance: This job includes keeping the list of DVD games on the company's website up to date and in good shape. This means adding new games, updating details, and making sure the portfolio shows the current collection of games.

Data interaction: Data from the Games entity is used for web portfolio updating. To keep the portfolio current and appealing, it's important to have correct information about games, pictures, and their availability.

3. Promotion Activity - Function: This function's main goal is to get people to rent DVDs of games by offering deals, discounts, or promotions on selected games that are shown on the website.

Data Interaction: To promote certain games or genres, promotional activities may need data from the Games entity. As needed, information can be added about sale times, discount rates, and promoted games.

4. Customer Bonding (Optional): Customers don't have to log in, but this function works on getting potential customers by making the web portfolio easy to use and full of useful information. To do this, you need to make sure the site has interesting material, easy-to-navigate pages, and a smooth interface.

Data Interaction: The general user experience of the web portfolio is what keeps customers interested. Even if there isn't much direct data interaction, the design, how the content is presented, and how easy it is to navigate all play a big role in getting people to come.

A.3. Data Requirements

- Admin:
 - Id_admin: This field shows the unique ID.
 - Email: The email address (must be @) goes here.
 - Password(s): This box says "Password".
 - Name: This field shows the name.

- Categories:
 - Category_id: This field holds the exact name of a game's subject, like "adventure", "sport", "horror", etc.
 - Name: This field shows the name.
- Projects:
 - Project_id: This field shows the unique ID.
 - Title: This field shows the title of project.
 - Description: This field released date, price and specification.
 - Category_id: This field holds the exact name of a game's subject, like "adventure", "sport", "horror", etc (connected with categories).
 - Image_path: This field shows the picture of game.
- Pesanan:
 - Id: This is a unique number that is used to keep track of each sale.
 - Pemesan: This field customer name.
 - Project_id: This field shows the unique ID.
 - Jumlah: This field shows order quantity.
 - Total_harga: This field shows total price.
 - Tanggal_bayar: This field shows payment date.
 - Tanggal_selesai: This field shows return date.
 - Catatan: This field shows the description.
- Backgrounds:
 - Id: This is a unique number that is used to keep track of each sale.
 - Image_url: This field shows the picture of background.
 - Name: This field shows the name.
- Testimonias:
 - Id: This is a unique number that is used to keep track of each sale.
 - Name: This field shows the name.
 - Position: This field shows the customer's position.
 - Image_url: This field shows the picture of background.
 - Content: This field shows testimonials from customers.

A.4. Business Rules

Unique project id game:

1. The id_category in the id_game project is auto-increment and unique, so it is different because it is for identity.

Inventory Availability:

2. It has an infinite supply of DVD games because it already has a master DVD game.

How to Manage game Information:

3. Data Completeness: Before adding a new game to the system, make sure that all of the needed game DVD product information fields are filled out. These include the game category and the project.
4. Data Accuracy: Make sure all forms are correct by using data validation checks.
5. Data standardisation: made sure that all information areas use the same formatting rules. This makes sure that the data is always the same and makes it easier to find within the system.

Customer Service (Admin):

6. Data Security: Protect customer information (name, email address) by putting in place strong data security means that follow privacy laws.

PART B

DATA MODELLING

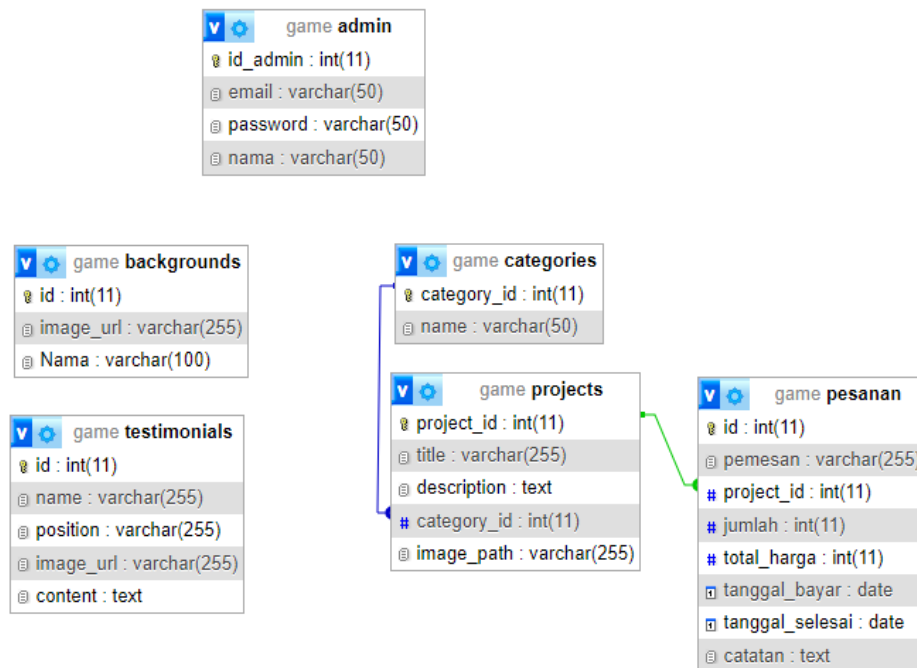
B.1. Revised Overview

This case study looks at how a website handles DVD game orders, keeps track of sales, and controls the games. The data model is mostly about DVD games, categories, and orders (which aren't required). Business rules make sure that info is correct and stays the same.

B.2. Revised Business Rules

- In the final price system, there are times when prices are lowered, but the system doesn't calculate price drops; instead, prices are updated.
- To keep customer information safe, data protection measures will be put in place.

B.3. ERD



B.4. Justification of the ERD

- BR1: admin can manage all features
- BR2: bookings made by bookers through the admin intermediary have rules 1
bookers can make many game dvd loan transactions.

PART C

SCHEMA CONVERSION AND NORMALISATION

C.1. Revised Business Rules

Unique project id game:

1. The id_category in the id_game project is auto-increment and unique, so it is different because it is for identity.

Inventory Availability:

2. It has an infinite supply of DVD games because it already has a master DVD game.

How to Manage game Information:

3. Data Completeness: Before adding a new game to the system, make sure that all of the needed game DVD product information fields are filled out. These include the game category and the project.
4. Data Accuracy: Make sure all forms are correct by using data validation checks.
5. Data standardisation: made sure that all information areas use the same formatting rules. This makes sure that the data is always the same and makes it easier to find within the system.

Customer Service (Admin):

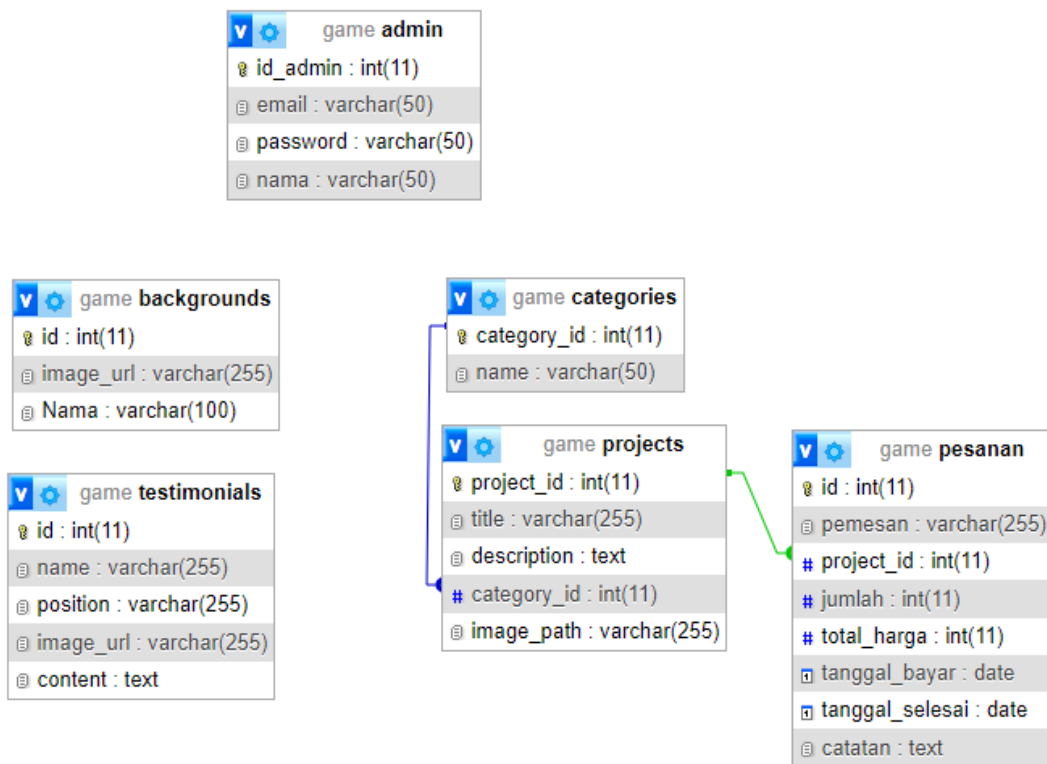
6. Data Security: Protect customer information (name, email address) by putting in place strong data security means that follow privacy laws.

Order Processing (Optional):

7. Payment Processing: You pay in person at the store.
8. Even though deals happen through the cashier system, make sure that all of them are recorded correctly in the web system so that you can keep track of your earnings, inventory, and customers' preferences.

9. Regular Content Updates: To get people more interested in your web site, you should regularly add new content like game reviews, suggestions, and the latest news in the gaming industry.
10. DVD and Console Device Protection Policy: Make it clear what the customer is responsible for when it comes to taking care of and protecting rental game DVDs and console devices.

C.2. Revised ERD



C.3. Relations

- Admin - Product (one-to-many):**

(one)

Admin <-----> Access_Product <-----> Product (Many)

| |

| (Can Access) |

- **Product - Order (One-to-Many):**

(One)

Product ---- > Order (Many)

|

| (Involved In)

Note:

- **Admin can access all products**
- **One product can be owned by many customers**

C.4. List of Functional Dependencies

Admin:

- $\text{Id_admin} \rightarrow \text{Email, Password(s), Name}$
- $\text{Email} \rightarrow \text{Id_admin, Password(s), Name}$
- $\text{Password(s)} \rightarrow \text{Id_admin, Email, Name}$
- $\text{Name} \rightarrow \text{Id_admin, Email, Password(s)}$

Categories:

- $\text{Category_id} \rightarrow \text{Name}$
- $\text{Name} \rightarrow \text{Category_id}$

Projects:

- $\text{Project_id} \rightarrow \text{Title, Description, Category_id, Image_path}$
- $\text{Title} \rightarrow \text{Project_id, Description, Category_id, Image_path}$
- $\text{Description} \rightarrow \text{Project_id, Title, Category_id, Image_path}$
- $\text{Category_id} \rightarrow \text{Project_id, Title, Description, Image_path}$
- $\text{Image_path} \rightarrow \text{Project_id, Title, Description, Category_id}$

Pesanan:

- Id → Pemesan, Project_id, Jumlah, Total_harga, Tanggal_bayar, Tanggal_selesai, Catatan
- Pemesan → Id, Project_id, Jumlah, Total_harga, Tanggal_bayar, Tanggal_selesai, Catatan
- Project_id → Id, Pemesan, Jumlah, Total_harga, Tanggal_bayar, Tanggal_selesai, Catatan
- Jumlah → Id, Pemesan, Project_id, Total_harga, Tanggal_bayar, Tanggal_selesai, Catatan
- Total_harga → Id, Pemesan, Project_id, Jumlah, Tanggal_bayar, Tanggal_selesai, Catatan
- Tanggal_bayar → Id, Pemesan, Project_id, Jumlah, Total_harga, Tanggal_selesai, Catatan
- Tanggal_selesai → Id, Pemesan, Project_id, Jumlah, Total_harga, Tanggal_bayar, Catatan
- Catatan → Id, Pemesan, Project_id, Jumlah, Total_harga, Tanggal_bayar, Tanggal_selesai

Backgrounds:

- Id → Image_url, Name
- Image_url → Id, Name
- Name → Id, Image_url

Testimonias:

- Id → Name, Position, Image_url, Content
- Name → Id, Position, Image_url, Content
- Position → Id, Name, Image_url, Content
- Image_url → Id, Name, Position, Content
- Content → Id, Name, Position, Image_url

C.5. Normalisation

Admin:

- Attributes: id_admin, email, password, nama (if Admin-Product becomes one-to-many)
- Analysis:
 - The primary key (user_id) uniquely identifies all other attributes.
 - There are no partial dependencies (dependencies on a subset of the primary key).
 - **HNF: User table is likely in Third Normal Form (3NF).**

NB: Products is a unity between category table and game projects.

Category:

- Attributes: category_id, name (if Categori-Game Project becomes one-to-many)
- Analysis:
 - The primary key (product_id) uniquely identifies all other attributes.
 - There are no partial dependencies.
 - **HNF: Product table is likely in 3NF.**

Game project:

- Attributes: project_id, title, description, category_id(foreign key), image_path (if project-Pesanan becomes one-to-many)
- Analysis:
 - The primary key (project_id) uniquely identifies all other attributes.
 - There are no partial dependencies.

- **HNF: Product table is likely in 3NF.**

Pesanan:

- Attributes: pesanan_id, pemesan, project_id (foreign key), jumlah (foreign key), total_harga (foreign key), tanggal_bayar, Tanggal_selesai, catatan
- Analysis:
 - The primary key (pesanan_id) might uniquely identify all other attributes.
 - There are no partial dependencies.
 - **HNF: Product table is likely in 3NF.**

Game backgrounds:

- Attributes: id, image_url, nama
- Analysis:
 - The primary key (pesanan_id) might uniquely identify all other attributes.
 - There are no partial dependencies.
 - **HNF: Product table is likely in 3NF.**

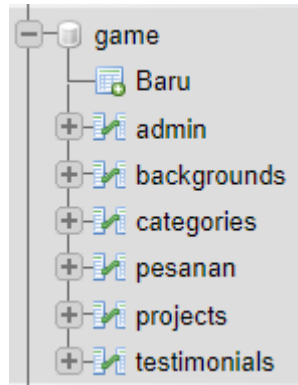
Testimonial:

- Attributes: id, name, position, image_url, content
- Analysis:
 - The primary key (pesanan_id) might uniquely identify all other attributes.
 - There are no partial dependencies.
 - **HNF: Product table is likely in 3N**

PART D

DATABASE

D.1. Database




D.2. Data

Tabel	Tindakan	Baris	Jenis	Penyortiran	Ukuran	Beban
<input type="checkbox"/> admin	★ Jelajahi Struktur Cari Tambahkan Kosongkan Hapus	1	InnoDB	utf8mb4_general_ci	16.0 KB	-
<input type="checkbox"/> backgrounds	★ Jelajahi Struktur Cari Tambahkan Kosongkan Hapus	6	InnoDB	utf8mb4_general_ci	16.0 KB	-
<input type="checkbox"/> categories	★ Jelajahi Struktur Cari Tambahkan Kosongkan Hapus	2	InnoDB	utf8mb4_general_ci	16.0 KB	-
<input type="checkbox"/> pesanan	★ Jelajahi Struktur Cari Tambahkan Kosongkan Hapus	0	InnoDB	utf8mb4_general_ci	32.0 KB	-
<input type="checkbox"/> projects	★ Jelajahi Struktur Cari Tambahkan Kosongkan Hapus	1	InnoDB	utf8mb4_general_ci	32.0 KB	-
<input type="checkbox"/> testimonials	★ Jelajahi Struktur Cari Tambahkan Kosongkan Hapus	3	InnoDB	utf8mb4_general_ci	16.0 KB	-
6 tabel	Jumlah	13	InnoDB	utf8mb4_general_ci	128.0 KB	0 B

☐ Pilih Semua Dengan pilihan: ▼

D.3. Queries

```
$query = "SELECT * FROM categories";
```

 Welcor

Home Kategori Game Pesanan Controller Testimoni Logout

Project Data and Categories

Add New Category


Show 10 entries Search:

No.	Name	Action
1	Adventure	Update Delete
2	Sports	Update Delete
3	Horror	Update Delete

Showing 1 to 3 of 3 entries

Previous 1 Next


```
$query = "SELECT projects.project_id, projects.title,
projects.description, categories.name, projects.image_path
FROM projects
INNER JOIN categories ON projects.category_id =
categories.category_id";
```

 Welcome, *admin*

Home Kategori Game Pesanan Controller Testimoni Logout

+ Add New Game

Show 10 entries Search:

No.	Category	Game Name	Description	Picture
1	Sports	FC24	<ul style="list-style-type: none">Spesifikasi<ul style="list-style-type: none">OS: Windows 10 – 64-BitProcessor: Intel Core i7-6700 @ 3.40GHz or AMD Ryzen 7 2700X @ 3.7 GHZMemory: 12 GB RAMGraphics: NVIDIA GeForce GTX 1660 or AMD RX 5600 XTDirectX: Version 12Network: Broadband Internet connectionStorage: 100 GB available spaceRilis<ul style="list-style-type: none">29 September 2023Harga<ul style="list-style-type: none">Rp 45000/day	

```
$query = "SELECT pesanan.*, projects.title FROM projects
          INNER JOIN pesanan ON projects.project_id =
pesanan.project_id";
```

Order Data

+ Add New Order

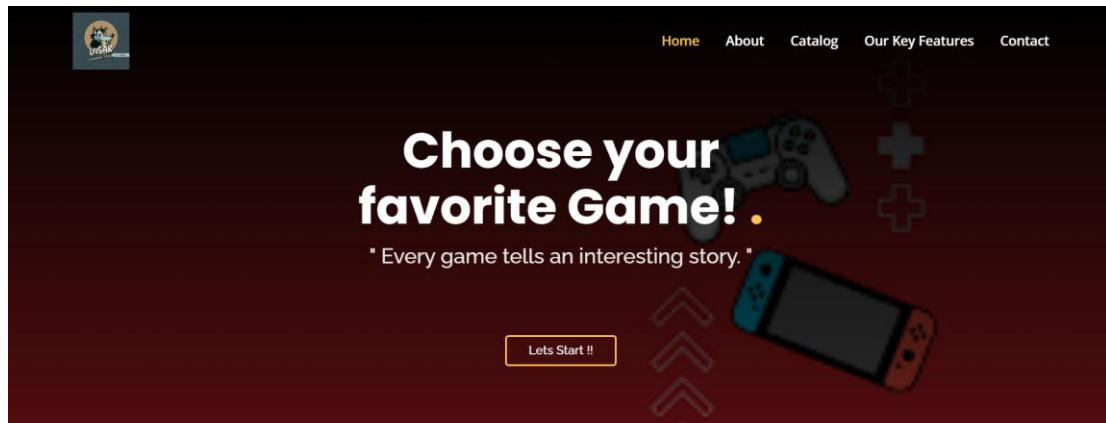
Show 10 entries Search:

No.	Name	Game	Quantity	Total Price	Order Date	Finished Date	Note	Action
1	Denny cahnan	FC24	2	Rp 180.000	25 April 2024	27 April 2024	dah dibalikin (done)	Update Delete

Showing 1 to 1 of 1 entries Previous 1 Next

PART E

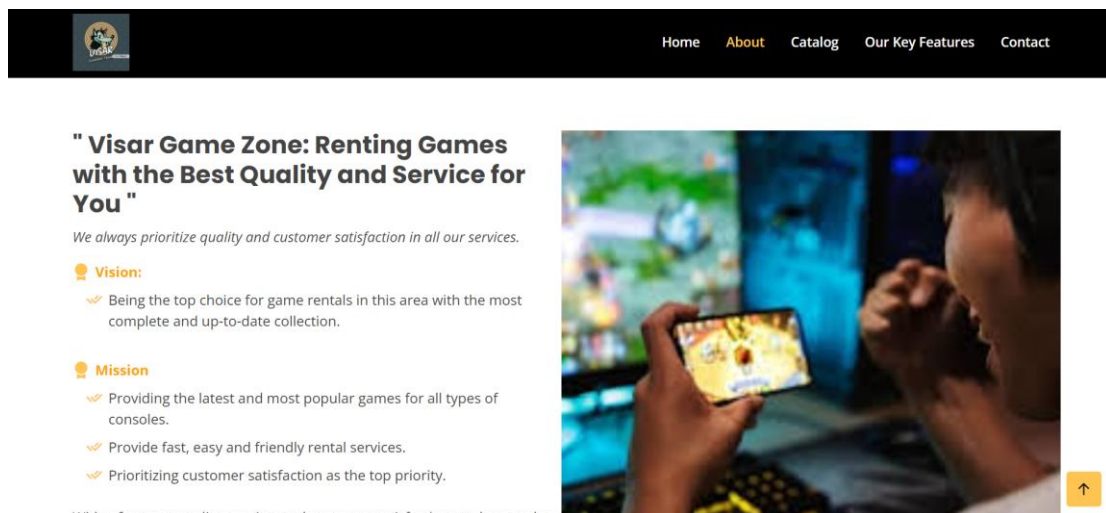
PHP-BASED APPLICATION



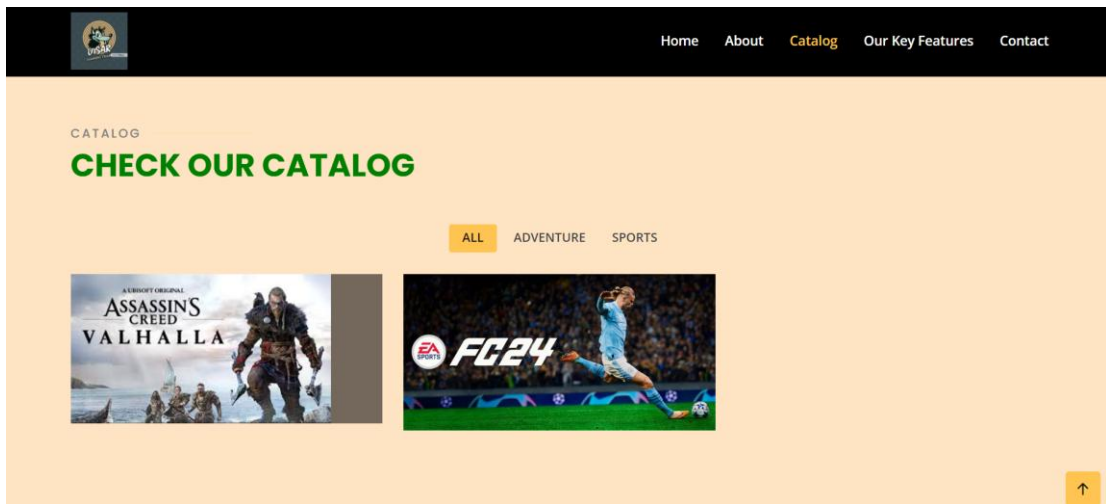
" Visar Game Zone: Renting Games



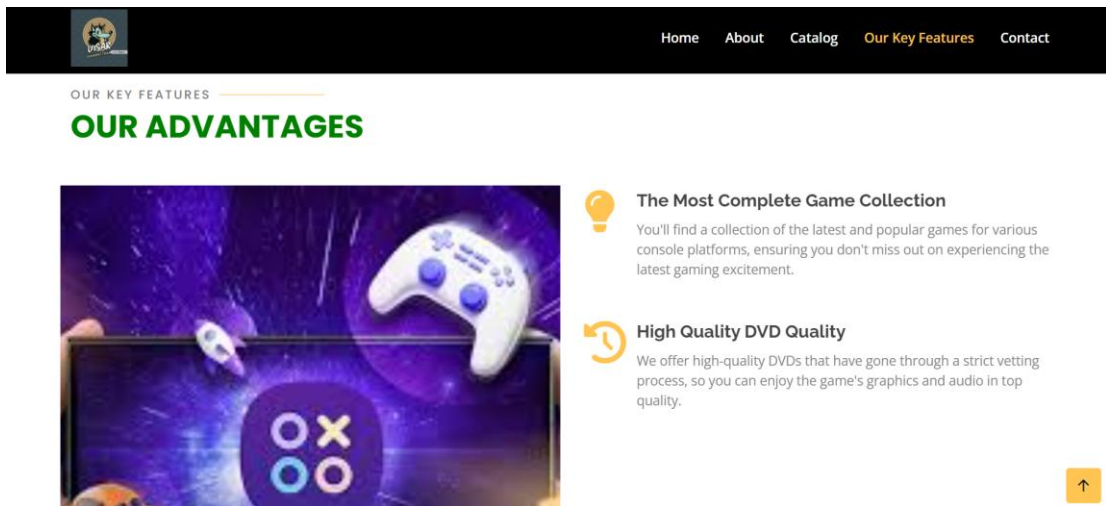
Home Page



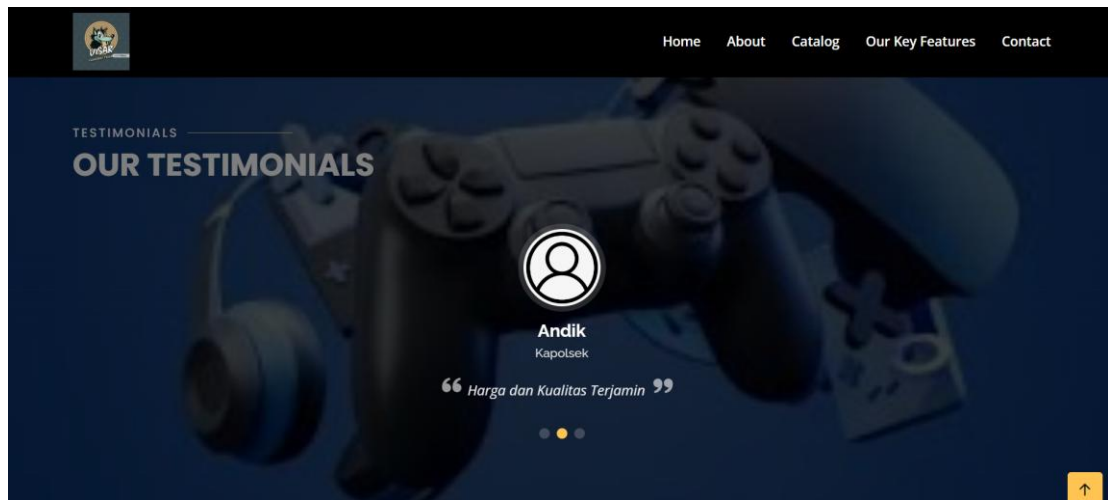
About Page



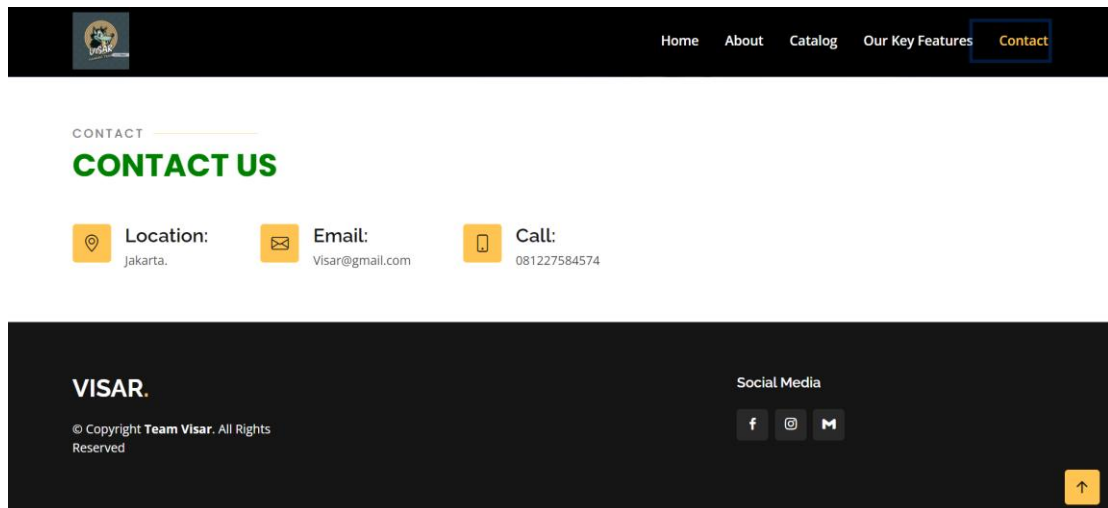
Catalog Page



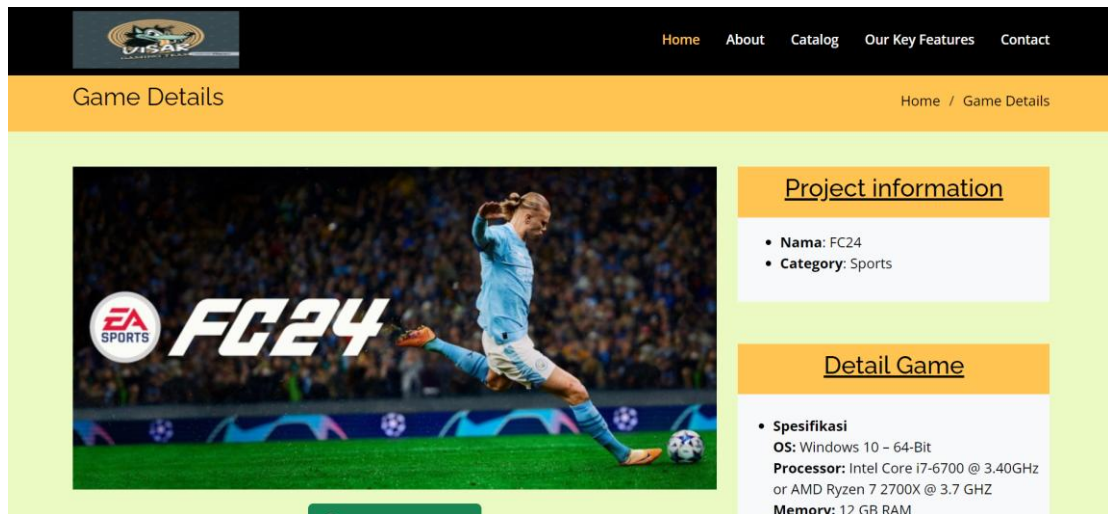
Our Key Features Page



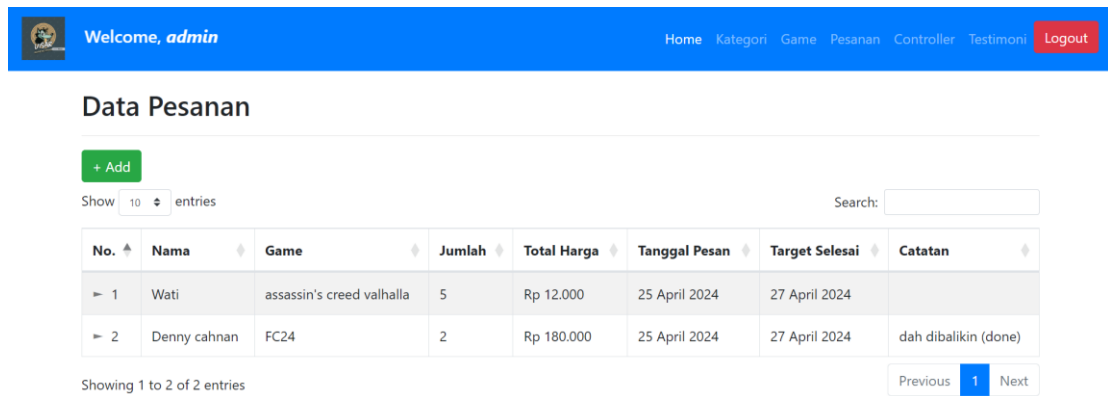
Testimonials



Contact Us Page



Game Details Page



Pesanan Page (Admin Access)