Universitatea Petrol-Gaze din Ploiești
Facultatea de Litere si Stiinte

JOCURI VIDEO

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Grupa: 40312 A

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2020

Contents

Introducere

Descriere

Aplicatia reprezinta un website ce contine informatii si imagini despre jocuri video, dar si despre companiile care le-au creat si publicat. Totodata, se gasesc informatii si despre platformele pe care aceste jocuri sunt publicate, precum si despre ecranizari ale lor. Informatiile sunt stocate intr-o baza de date MySQL. Mai exista inca o baza de date ce in care sunt stocate datele de logare pentru contul de administrator.

Pe pagina principala, "index.php" se afla toate jocurile impreuna cu o imagine de prezentare si numele lor.

Dand click pe un joc se face redirect catre o alta pagina, "details.php", unde se pot vedea detalii despre acel joc, dar si un carousel cu 3 imagini.

Din aceasta pagina se poate da click pe developer-ul sau publisher-ul jocului, fiind un alt redirect catre o pagina in care sunt prezentate informatii despre acea companie.

Name	HQ	Founded	Managed by
FromSoftware	Tokyo , Japan	1989-11-01	Hidetaka Miyazaki

Tehnologii folosite
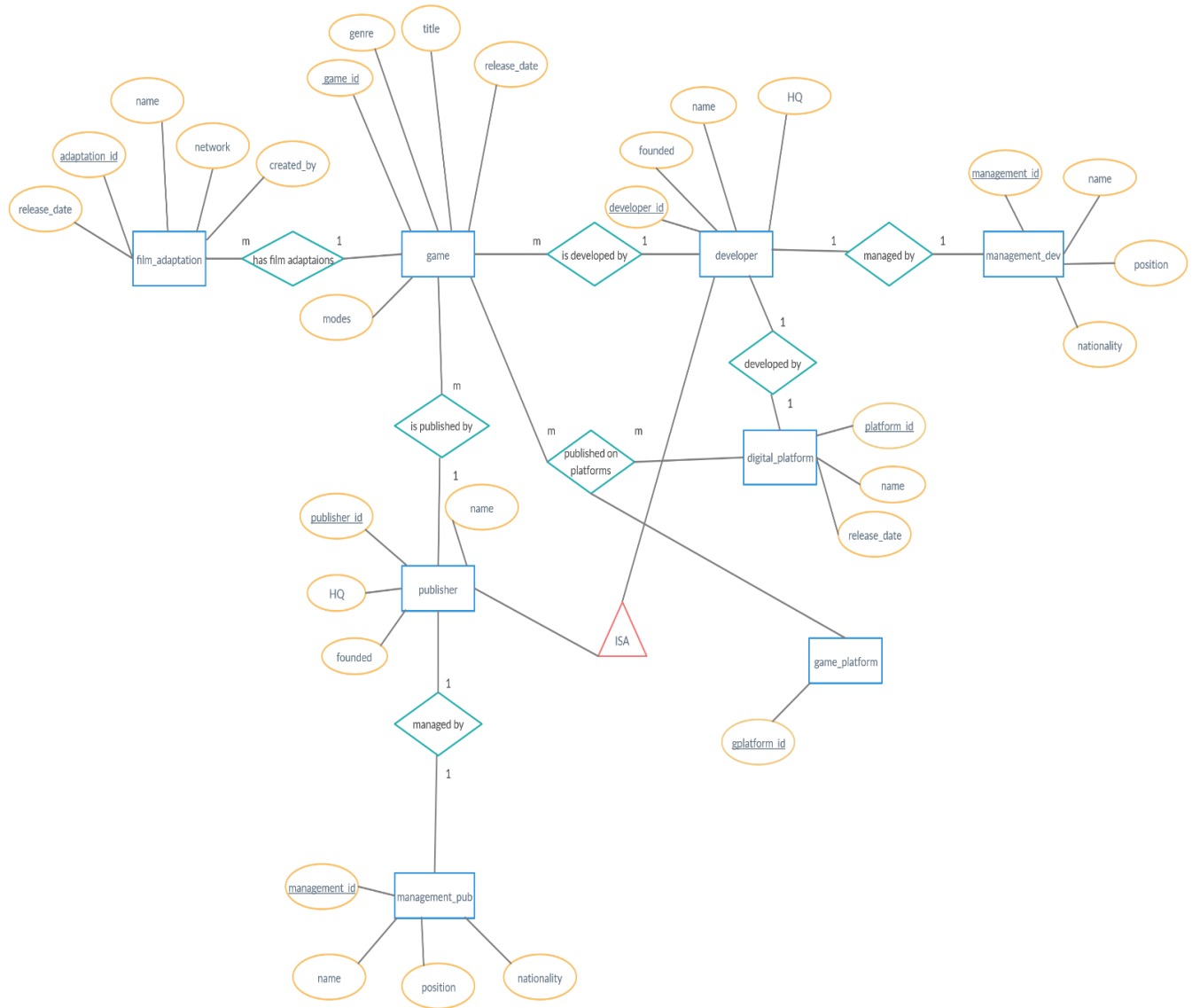
- Front-end-ul a fost creat folosind HTML, CSS si Bootstrap 4. Font-urile au fost preluate de pe Google Fonts, iar imaginile de pe Google Images.
- Back-end-ul a fost scris in PHP.
- Baza de date este stocata in MySQL.

Atat codul cat si .sql dump-urile se afla in repository-ul urmator:

https://github.com/Keroxen/BD-Project

Analiza si proiectarea aplicatiei

Diagrama Entitate-Legatura

Entity-Relationship Diagram

film_adaptation
- release_date
- adaptation_id
- name
- network
- created_by

film_adaptation —m— **has film adaptaions** —1— **game**

game
- genre
- title
- game_id
- release_date
- modes

game —m— **is developed by** —1— **developer**

developer
- name
- HQ
- founded
- developer_id

developer —1— **managed by** —1— **management_dev**

management_dev
- management_id
- name
- position
- nationality

developer —1— **developed by** —1— **digital_platform**

digital_platform
- platform_id
- name
- release_date

game —m— **is published by** —1— **publisher**

game —m— **published on platforms** —m— **digital_platform**

publisher
- publisher_id
- name
- HQ
- founded

publisher —1— **managed by** —1— **management_pub**

ISA

game_platform
- gplatform_id

management_pub
- management_id
- name
- position
- nationality

Baza de date contine 8 tabele: "Game", "Film_adaptation", "Developer", "Management_dev", "Publisher", "Management_pub", "Digital_platform", "Game_platform".

Legaturile dintre tabele sunt de urmatoarele tipuri:

- 3 legaturi 1-m intre tabela "game" si tabela "film_adaptation", tabela "developer" si tabela "game", tabela "publisher" si tabela "game";
- O legatura m-m intre tabela "game" si tabela "digital_platform";
- 3 legaturi 1-1 intre tabela "publisher" si "management_pub", intre tabela "developer" si "management_dev", tabela "developer" si "digital_platform".
- O ierarhie ISA intre "developer" si "publisher".

Structura bazei de date

Table ▲	Action						Rows	Type	Collation	Size	Overhead
developer	★	▦ Browse	⊠ Structure	⊛ Search	⊟ Insert	⊟ Empty	⊘ Drop	15	InnoDB	utf8mb4_general_ci	48.0 KiB	–
digital_platform	★	▦ Browse	⊠ Structure	⊛ Search	⊟ Insert	⊟ Empty	⊘ Drop	6	InnoDB	utf8mb4_general_ci	32.0 KiB	–
film_adaptation	★	▦ Browse	⊠ Structure	⊛ Search	⊟ Insert	⊟ Empty	⊘ Drop	2	InnoDB	utf8mb4_general_ci	32.0 KiB	–
game	★	▦ Browse	⊠ Structure	⊛ Search	⊟ Insert	⊟ Empty	⊘ Drop	16	InnoDB	utf8mb4_general_ci	48.0 KiB	–
game_platform	★	▦ Browse	⊠ Structure	⊛ Search	⊟ Insert	⊟ Empty	⊘ Drop	20	InnoDB	utf8mb4_general_ci	48.0 KiB	–
management_dev	★	▦ Browse	⊠ Structure	⊛ Search	⊟ Insert	⊟ Empty	⊘ Drop	14	InnoDB	utf8mb4_general_ci	32.0 KiB	–
management_pub	★	▦ Browse	⊠ Structure	⊛ Search	⊟ Insert	⊟ Empty	⊘ Drop	11	InnoDB	utf8mb4_general_ci	32.0 KiB	–
publisher	★	▦ Browse	⊠ Structure	⊛ Search	⊟ Insert	⊟ Empty	⊘ Drop	11	InnoDB	utf8mb4_general_ci	32.0 KiB	–
8 tables	Sum						95	InnoDB	utf8mb4_general_ci	304.0 KiB	0 B

Tabelele sunt de tipul InnoDB.

Structura tabelelor:

1. Game

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	game_id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	title	varchar(100)	utf8mb4_general_ci		No	None			Change Drop More
3	developer_id	int(11)			Yes	NULL			Change Drop More
4	publisher_id	int(11)			Yes	NULL			Change Drop More
5	genre	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
6	modes	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
7	release_date	date			No	None			Change Drop More
8	imagePath	text	utf8mb4_general_ci		Yes				Change Drop More

2. Developer

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	developer_id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	name	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
3	HQ	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
4	founded	date			No	None			Change Drop More
5	management_id	int(11)			Yes	NULL			Change Drop More
6	platform_id	int(11)			Yes	NULL			Change Drop More

3. Publisher

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	publisher_id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	name	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
3	HQ	varchar(50)	utf8mb4_general_ci		No	None			Change Drop More
4	founded	date			No	None			Change Drop More
5	management_id	int(11)			Yes	NULL			Change Drop More

4. Film_adaptation

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	adaptation_id	int(11)			No	None		AUTO_INCREMENT	Change Drop More
2	name	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
3	created_by	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
4	network	varchar(30)	utf8mb4_general_ci		No	None			Change Drop More
5	release_date	date			No	None			Change Drop More
6	game_id	int(11)			No	None			Change Drop More

5. Management_pub

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□ 1	**management_id** 🔑	int(11)			No	*None*		AUTO_INCREMENT	🖉 Change ⊖ Drop ▼ More
□ 2	**name**	varchar(30)	utf8mb4_general_ci		No	*None*			🖉 Change ⊖ Drop ▼ More
□ 3	**position**	varchar(50)	utf8mb4_general_ci		No	*None*			🖉 Change ⊖ Drop ▼ More
□ 4	**nationality**	varchar(50)	utf8mb4_general_ci		No	*None*			🖉 Change ⊖ Drop ▼ More

6. Management_dev

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□ 1	**management_id** 🔑	int(11)			No	*None*		AUTO_INCREMENT	🖉 Change ⊖ Drop ▼ More
□ 2	**name**	varchar(30)	utf8mb4_general_ci		No	*None*			🖉 Change ⊖ Drop ▼ More
□ 3	**position**	varchar(50)	utf8mb4_general_ci		No	*None*			🖉 Change ⊖ Drop ▼ More
□ 4	**nationality**	varchar(50)	utf8mb4_general_ci		No	*None*			🖉 Change ⊖ Drop ▼ More

7. Digital_platform

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□ 1	**platform_id** 🔑	int(11)			No	*None*		AUTO_INCREMENT	🖉 Change ⊖ Drop ▼ More
□ 2	**name**	varchar(30)	utf8mb4_general_ci		No	*None*			🖉 Change ⊖ Drop ▼ More
□ 3	**release_date**	date			No	*None*			🖉 Change ⊖ Drop ▼ More

8. Game_platform

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
□ 1	**gplatform_id** 🔑	int(11)			No	*None*		AUTO_INCREMENT	🖉 Change ⊖ Drop ▼ More
□ 2	**game_id** 🔑	int(11)			Yes	*NULL*			🖉 Change ⊖ Drop ▼ More
□ 3	**platform_id** 🔑	int(11)			Yes	*NULL*			🖉 Change ⊖ Drop ▼ More

Dezvoltarea aplicatiei

Interogarile

Insert

Query-ul de Insert se afla in fisierul "addgame.php" si are ca scop adaugarea unui nou joc in baza de date.

```php
$stmt = $conn->prepare("INSERT INTO game (title, genre, modes, release_date, imagePath, developer_id,
publisher_id) VALUES (:title,
:genre, :mode, :release, :imagePath, :developer, :publisher)");
```
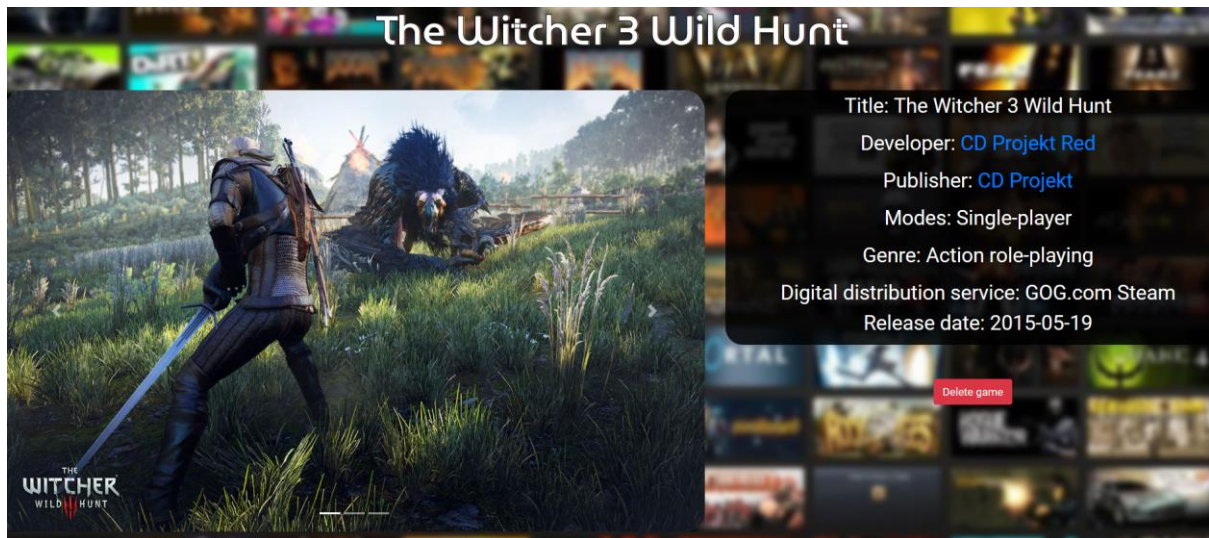

Pentru developer, publisher, si platform, datele sunt preluate din tabelele respective din baza de date.

Delete

Butonul de delete apare doar daca aplicatia este vizualizata in contul de administrator.

Acest buton executa query-ul urmator, query ce sterge jocul respectiv atat din tabela "game", cat si legaturile acestuia din tabela "game_platform".

```php
$stmt = $conn->prepare("DELETE game, game_platform FROM game INNER JOIN
game_platform WHERE game.game_id = game_platform.game_id AND game.game_id
= :game_id");
```

Reuniune

Reuniunea se afla in pagina "devs_pubs.php", pagina in care se ajunge apasand butonul "Show developers and publishers" din navbar.
Butonul executa urmatorul query:

```php
$sql = "
SELECT name, developer_id as id
FROM
(
    SELECT name, developer_id FROM developer
    UNION ALL
    SELECT name, publisher_id FROM publisher
) id
GROUP BY name
;
```

Acesta afiseaza o lista cu developerii si publisherii, fara a elimina duplicatele. Apoi, sub fiecare companie sunt afisate jocurile dezvoltate si/sau publicate.
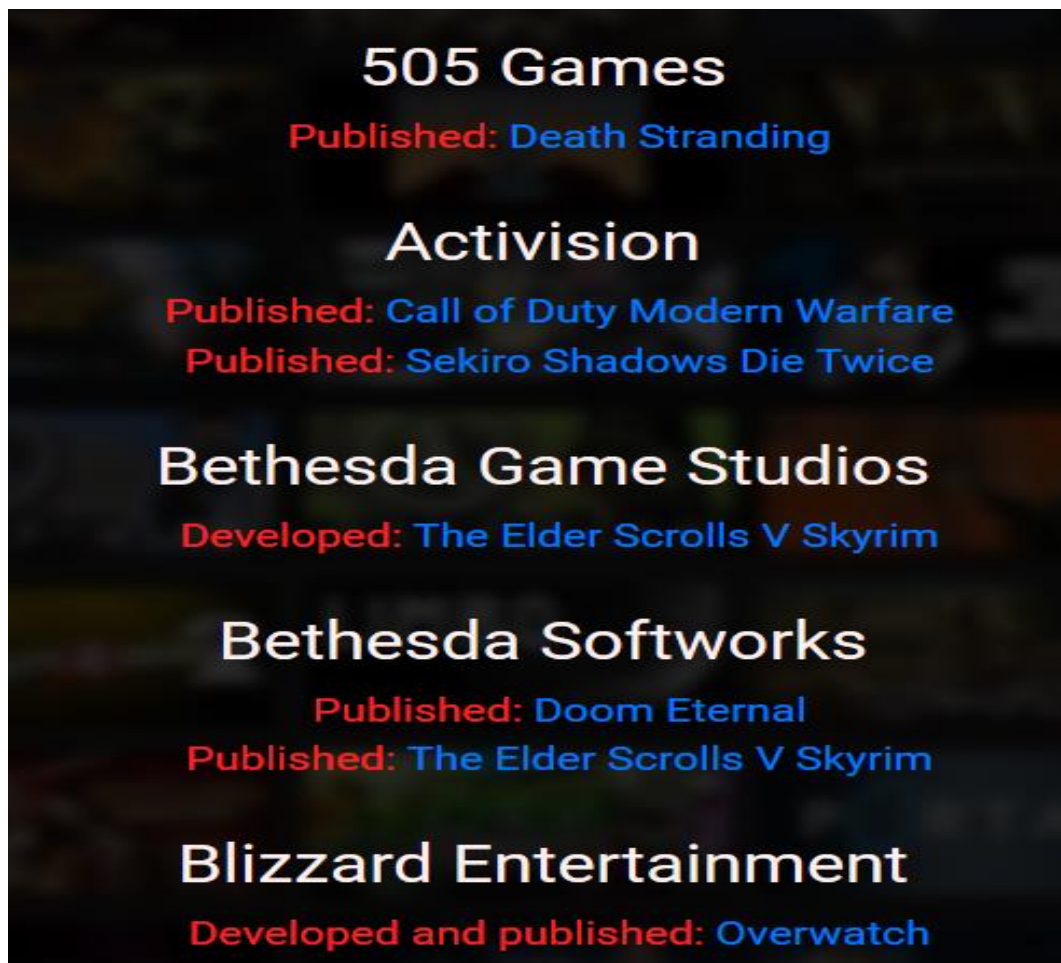
Diferenta

Diferenta se afla in pagina "unreleased.php", pagina la care se ajunge apasand butonul "Show unreleased games" din navbar. Aici, este executat query-ul:

```
$sql =
    "SELECT game.game_id, game.title, game.modes, game.genre,
game.release_date,
developer.developer_id, developer.name AS 'dName',
publisher.publisher_id, publisher.name AS 'pName'
FROM game
INNER JOIN developer ON game.developer_id = developer.developer_id
INNER JOIN publisher ON game.publisher_id = publisher.publisher_id
WHERE game.release_date NOT IN(
SELECT release_date
FROM game
WHERE release_date < CURRENT_DATE)";
```

Acesta afiseaza detalii despre jocurile care au data de lansare mai mare decat data curenta.

Title	Developer	Publisher	Genre	Modes	Release date
Cyberpunk 2077	CD Projekt Red	CD Projekt	Role-playing	Single-player, multiplayer	2020-09-17
Death Stranding	Kojima Productions	505 Games	Action	Single-player	2020-07-14

Selectie

O simpla selectie este aceea din pagina "details.php", pagina ce afiseaza informatii despre jocul care a fost selectat din "index.php".

```
$stmt = $conn->prepare("SELECT * FROM game WHERE game_id = :id");
```


Title: The Witcher 3 Wild Hunt

Developer: CD Projekt Red

Publisher: CD Projekt

Modes: Single-player

Genre: Action role-playing

Digital distribution service: GOG.com Steam

Release date: 2015-05-19

Proiectie

Proiectia a fost folosita pentru a afisa toate modurile de joc impreuna cu jocurile care fac parte din fiecare. Acest query se afla in pagina "mode.php", pagina la care se ajunge apansand butonul "Show games by mode" din navbar.

```
$sql = "
    SELECT DISTINCT modes FROM game;
```

Single-player	Single-player, multiplayer	Multiplayer
The Witcher 3 Wild Hunt	Call of Duty Modern Warfare	League of Legends
Sekiro Shadows Die Twice	Red Dead Redemption 2	PlayerUnknown's Battlegrounds
The Elder Scrolls V Skyrim	Grand Theft Auto V	Overwatch
Assassin's Creed Odyssey	Cyberpunk 2077	Apex Legends
Death Stranding	Doom Eternal	Valorant

Jonctiuni

O jonctiune a fost folosita pentru a afisa numele platformelor digitale pe care se afla un joc.

```
SELECT game_platform.platform_id, digital_platform.name
FROM game_platform
INNER JOIN digital_platform
ON game_platform.platform_id = digital_platform.platform_id
WHERE game_platform.game_id = :id";
```


Digital distribution service: Steam

O alta jonctiune a fost folosita pentru a afisa numele persoanei de la conducere a unei companii publisher sau developer.

```
SELECT publisher.management_id, management_pub.management_id,
management_pub.name
FROM publisher
INNER JOIN management_pub
ON publisher.management_id = management_pub.management_id
WHERE publisher.publisher_id = :id";
```

Name	HQ	Founded	Managed by
Activision	Santa Monica, California , US	1970-10-01	Rob Kostich

Normalizarea bazei de date

FN1

Baza de date nu se afla in FN1 deoarece in coloanele 'genre' si 'modes' din tabelul 'game' unele tupluri nu aveau valori atomice. Asadar, pentru a aduce baza de date in FN1 tabelul 'game' a fost modificat astfel:

- Primary Key 'game_id' a fost schimbata in Composite Key alcatuita din "game_id", "genre", "modes".

- Apoi au fost modificate tuplurile pentru a contine doar valori atomice.

Exemplu de tupluri inainte de a fi aduse in FN1:

| 9 | Cyberpunk 2077 | 1 | 1 | Role-playing | Single-player, multiplayer | 2020-09-17 | uploads/cyberpunk 2077.jpg |
| 15 | Apex Legends | 13 | 9 | Battle royale, first-person shooter | Multiplayer | 2019-02-04 | uploads/apex legends.jpg |

Exemplu de tupluri in FN1:

| 9 | Cyberpunk 2077 | 1 | 1 | Role-playing | Multiplayer | 2020-09-17 | uploads/cyberpunk 2077.jpg |
| 9 | Cyberpunk 2077 | 1 | 1 | Role-playing | Single-player | 2020-09-17 | uploads/cyberpunk 2077.jpg |

15	Apex Legends	13	9	Battle royale	Multiplayer	2019-02-04	uploads/apex legends.jpg
15	Apex Legends	13	9	Battle royale, first-person shooter	Multiplayer	2019-02-04	uploads/apex legends.jpg
15	Apex Legends	13	9	First-person shooter	Multiplayer	2019-02-04	uploads/apex legends.jpg

FN2

Pentru ca baza de date sa fie in FN2 au trebuit extrase campurile care nu sunt dependente de intreaga cheie primara si au fost mutate intr-o alta tabela. Astfel, au fost createt cele doua tabele:

'genre':

genre_id	name
1	Action role-playing
2	First-person shooter
3	Action-adventure
4	MOBA
5	Battle royale
6	First-person shooter
7	Role-playing
8	Stealth
9	Action

Si 'mode':

mode_id	name
1	Single-player
2	Multiplayer

FN3

Pentru ca baza de date sa fie in FN3 au fost eliminate coloanele care nu sunt dependente tranzitiv de cheia primara.
Astfel a fost nevoie de inca doua tabele in care am stocat relatiile multi-multi dintre id-ul unui joc si id-urile asociate din genre si mode.

Tabelul 'game_genre':

gam_gen_id	game_id	genre_id
4	15	2
5	15	5
6	5	3

Tabelul 'game_mode'

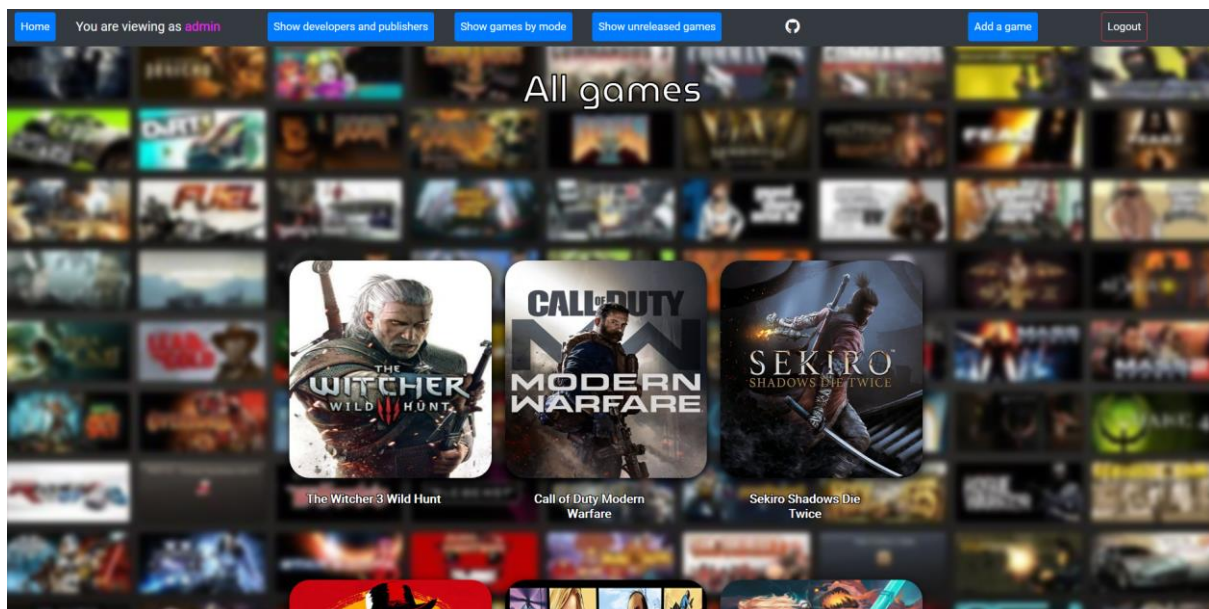| gam_mode_id	game_id	mode_id
3	15	2
4	5	1
5	5	2

FNBC

Pentru ca baza de date sa fie in FNBC trebuie sa fie eliminate dependentele functionale non-cheie. In urma proiectarii initiale si a modificarilor aduse formelor anterioare, nu au fost necesare alte modificari, astfel ca baza de date era deja in FNBC.

Concluzii

Aplicatia are in mare parte doar scop informativ.

Pentru contul de administrator username-ul este "admin", iar parola este "123".

Pagina principala, "index.php".

Bibiliografie

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