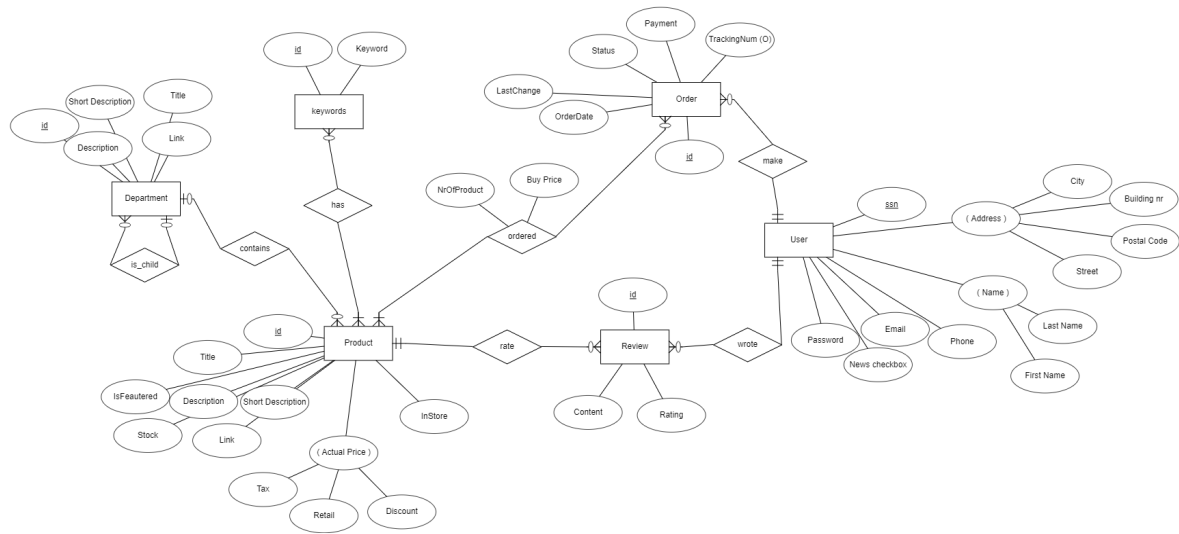# Database report - AltOnline

Group 23
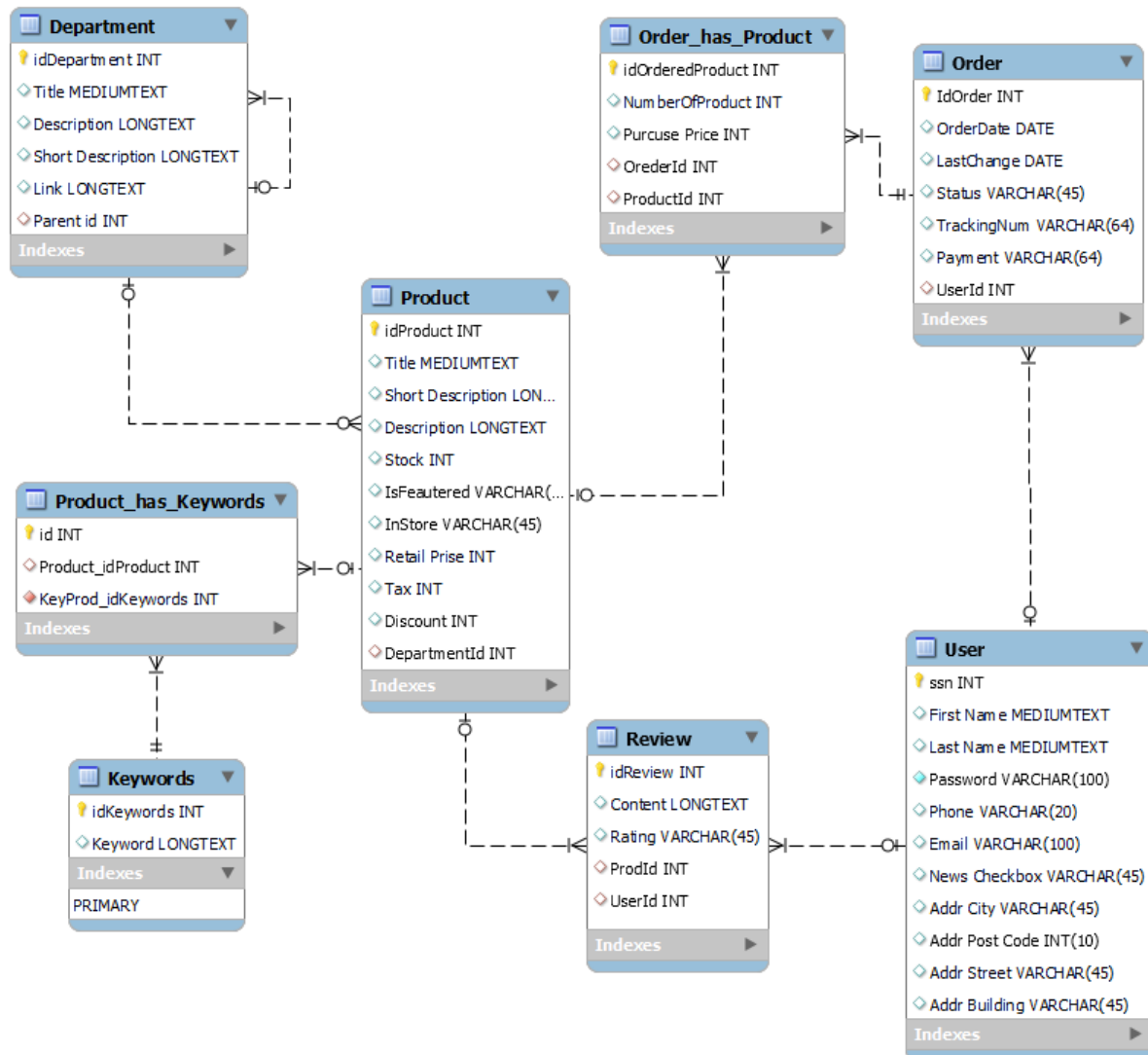
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Assignment 1- ER Diagramm

Assignment 2 - Normal form

From the ER diagram in Assignment 1 we created first the below table structure.

Department
- idDepartment INT
- Title MEDIUMTEXT
- Description LONGTEXT
- Short Description LONGTEXT
- Link LONGTEXT
- Parent id INT
- Indexes

Order_has_Product
- idOrderedProduct INT
- NumberOfProduct INT
- Purcuse Price INT
- OrederId INT
- ProductId INT
- Indexes

Order
- IdOrder INT
- OrderDate DATE
- LastChange DATE
- Status VARCHAR(45)
- TrackingNum VARCHAR(64)
- Payment VARCHAR(64)
- UserId INT
- Indexes

Product
- idProduct INT
- Title MEDIUMTEXT
- Short Description LON...
- Description LONGTEXT
- Stock INT
- IsFeautered VARCHAR(...
- InStore VARCHAR(45)
- Retail Prise INT
- Tax INT
- Discount INT
- DepartmentId INT
- Indexes

Product_has_Keywords
- id INT
- Product_idProduct INT
- KeyProd_idKeywords INT
- Indexes

Keywords
- idKeywords INT
- Keyword LONGTEXT
- Indexes
- PRIMARY

Review
- idReview INT
- Content LONGTEXT
- Rating VARCHAR(45)
- ProdId INT
- UserId INT
- Indexes

User
- ssn INT
- First Name MEDIUMTEXT
- Last Name MEDIUMTEXT
- Password VARCHAR(100)
- Phone VARCHAR(20)
- Email VARCHAR(100)
- News Checkbox VARCHAR(45)
- Addr City VARCHAR(45)
- Addr Post Code INT(10)
- Addr Street VARCHAR(45)
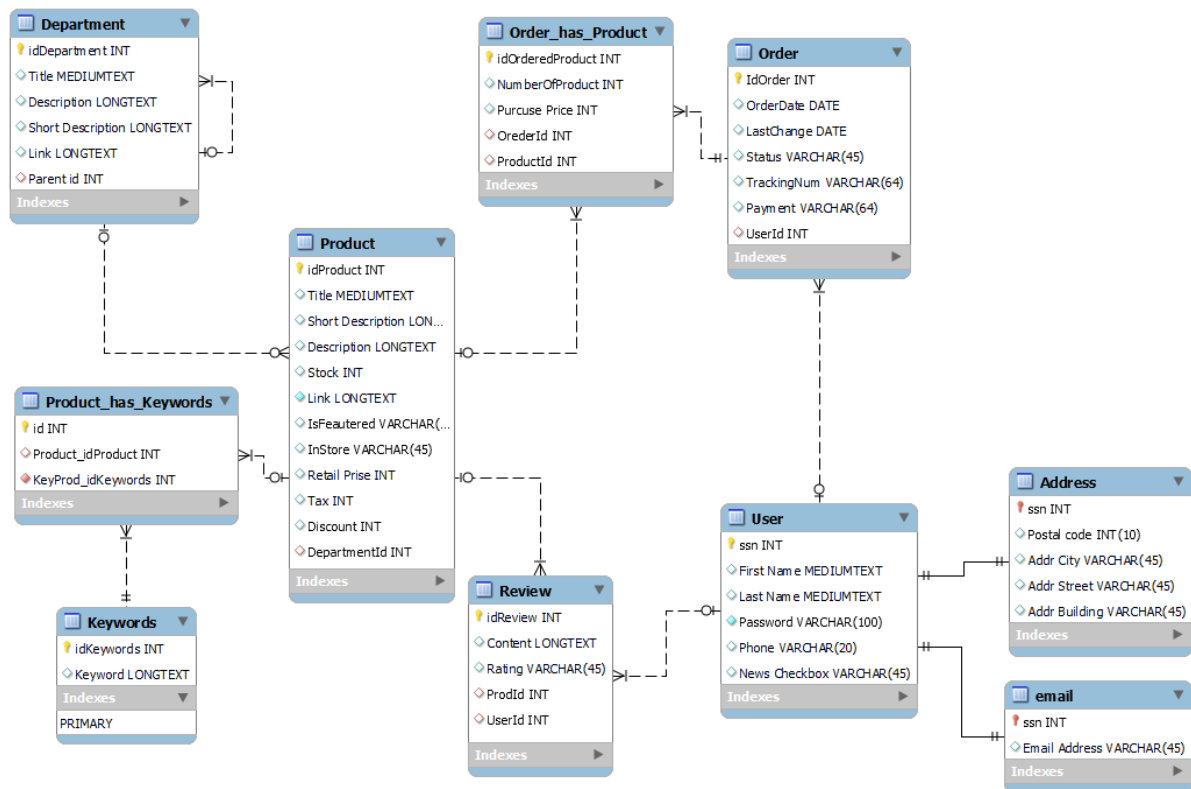- Addr Building VARCHAR(45)
- Indexes

It's in the 2nd normal form. It's in first form because every table has a Primary key and no attribute hase multivalued data.
And it is in second form, because every data is dependent on its tables primary key.
It's not in 3rd normal form, because there is transitive dependency in the User table (e.g: e-mail is determinate everything else, and City+ Street Building determinate Postal codes)
So we modify these parts to reach 3rd normal form as shown below:

Department
- idDepartment INT
- Title MEDIUMTEXT
- Description LONGTEXT
- Short Description LONGTEXT
- Link LONGTEXT
- Parent id INT
- Indexes

Order_has_Product
- idOrderedProduct INT
- NumberOfProduct INT
- Purcuse Price INT
- OrederId INT
- ProductId INT
- Indexes

Order
- IdOrder INT
- OrderDate DATE
- LastChange DATE
- Status VARCHAR(45)
- TrackingNum VARCHAR(64)
- Payment VARCHAR(64)
- UserId INT
- Indexes

Product
- idProduct INT
- Title MEDIUMTEXT
- Short Description LON...
- Description LONGTEXT
- Stock INT
- Link LONGTEXT
- IsFeautered VARCHAR(...
- InStore VARCHAR(45)
- Retail Prise INT
- Tax INT
- Discount INT
- DepartmentId INT
- Indexes

Product_has_Keywords
- id INT
- Product_idProduct INT
- KeyProd_idKeywords INT
- Indexes

Keywords
- idKeywords INT
- Keyword LONGTEXT
- Indexes
- PRIMARY

Review
- idReview INT
- Content LONGTEXT
- Rating VARCHAR(45)
- ProdId INT
- UserId INT
- Indexes

User
- ssn INT
- First Name MEDIUMTEXT
- Last Name MEDIUMTEXT
- Password VARCHAR(100)
- Phone VARCHAR(20)
- News Checkbox VARCHAR(45)
- Indexes

Address
- ssn INT
- Postal code INT(10)
- Addr City VARCHAR(45)
- Addr Street VARCHAR(45)
- Addr Building VARCHAR(45)
- Indexes

email
- ssn INT
- Email Address VARCHAR(45)
- Indexes

Milestone 3
We attach the sql codes runed in the server, to generate tables, add entries and the task 5 queries.

To generate database tables *sql_quries.sql*
To add entry data *add_entry.sql*
To the tasks in task 5 we wrote the queries in the *queries_task.sql*
The modification from the previous version is we modified the key to the connection table and right now the tables representing connections hase multiple primary keys as compound primary keys.
And here is the new reverse engine ered diagram from our database:
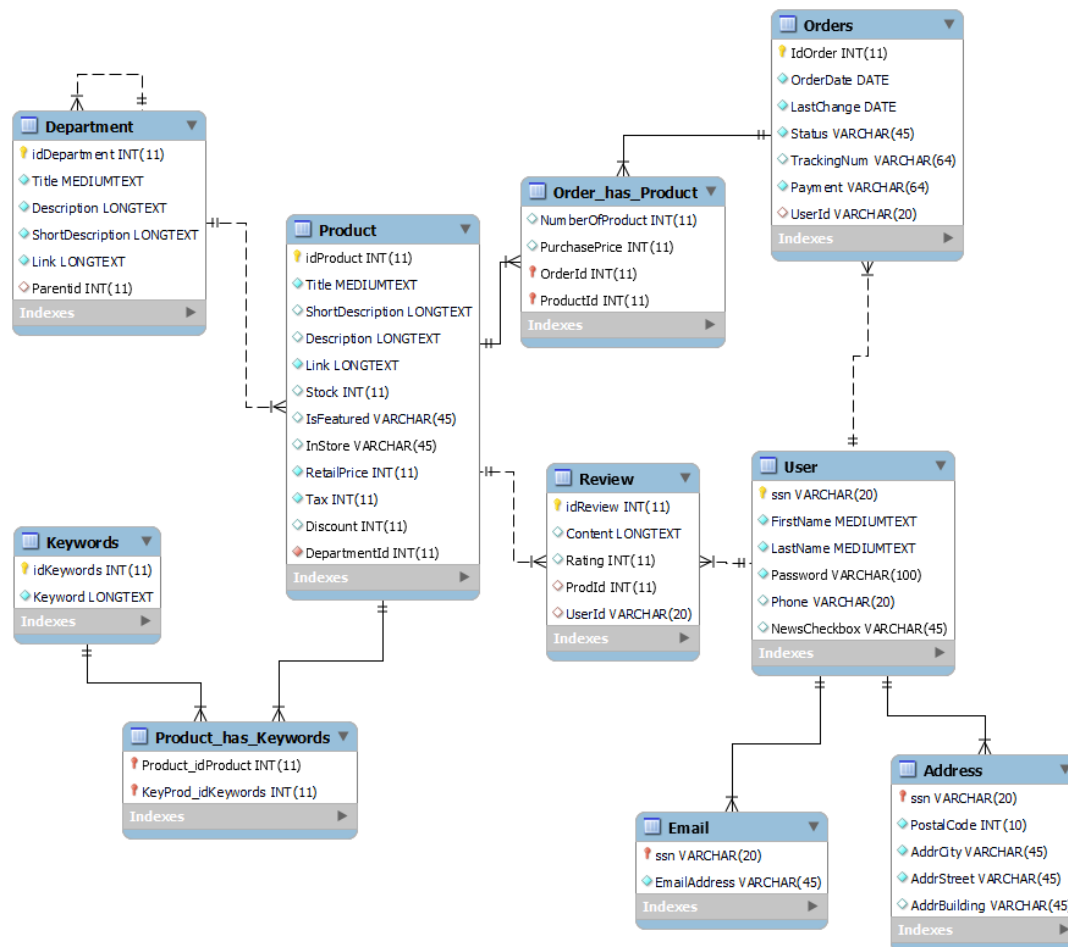
Task 6:

So the easiest query is the first to get the Home page description. But with keys we can even improve this:

EXPLAIN SELECT Description
FROM Department
WHERE Title = 'Home';

First without index we run this code with Explain an get the following which means that it visited 16 row during it's running:

 # id, select_type, table, type, possible_keys, key, key_len, ref, rows, Extra
'1', 'SIMPLE', 'Department', 'ALL', NULL, NULL, NULL, NULL, '16', 'Using where'

After adding index (*ALTER TABLE Department add index ind(Title(6))*) we got the following rundata from explain:

'1', 'SIMPLE', 'Department', 'ref', 'ind', 'ind', '20', 'const', '1', 'Using where'

It means that instead of 16 row we only visited 1 which is quite an improvement.

Another example, where we won't gain from indexing is for the second query:

SELECT
*   Title,*
* ShortDescription,*
* Link*
FROM Department
WHERE Parentid = 0;

Here we also can make improvement by using indexes:
Without index we got:

id	select_type	table	type	possible_keys	key	key_len	ref	rows	Extra
1	SIMPLE	Department	ref	Parentid	Parentid	5	const	3	NULL

If we add index (*ALTER TABLE Department add index parent(Parentid)*)
We got run data:

id	select_type	table	type	possible_keys	key	key_len	ref	rows	Extra
1	SIMPLE	Department	ref	parent	parent	5	const	3	NULL

Since it was already a key, because we indexed the foregn key, we won't gain any performance from it.

Milestone 4

We created a python code (*mydb.py*). In running there will be a menu, from where you can do the following:

Navigate in departments and it's products
Get department page by id
Get product page by id
Modify discount of product by product id

Below are snipets from the running program to demonstrate it

Navigation (option h)

Option(2)

Opt(2)

Opt 1

```
Product page of: Chair 1                    link13
Curren price: 104.5
Chair1 Long Description

To go to department page press u / quit to main page
```

Or option s

```
Give a valid department id to go to its page:
13
```

Dep 13

```
PROBLÉMÁK    KIMENET    TERMINÁL    JUPYTER    HIBAKERESÉSI KONZOL

Department of Kitchen                    Home/Kitchen

Kitchen department description: Lorem ipsum dolor sit amet, consectetur adipiscing elit. Integer cursus.


Subdepartments:
(1)      Department of Tables     Home/Kitchen/Tables
Tables section

(2)      Department of Chairs     Home/Kitchen/Chairs
Chairs section



Product in department:
To go to link press it's reference numbers / To go parent press u / q to quit to main page:
```

Or option m

```
Give a valid product id to modify it's discount:
1
```

```
The current discount to the product Mac1 Title (product id: 1) is 10%
To change the discount value press c. Else quit
c
```

```
Give the new discount value (integer between 0 and 100) / q to quit to main page:
15
```

Check that it really modified:

```
The current discount to the product Mac1 Title (product id: 1) is 15%
To change the discount value press c. Else quit

```

Or option p:

```
Give a valid product id to go to its page:
1
```

```
Product page of: Mac1 Title                    link1
Curren price: 935.0
Mac1 Description

To go to department page press u / quit to main page

```