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WS PROJECT
REPORT

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Contents

Classes

In the start of the project only one class was created, being this one the Exam.java this one will hold the next values, including at the same time the getters and setters for them.

```java
package myRESTwsExam;

public class Exam {

    private String idexam;
    private String description;
    private String examdate;
    private String examtime;
    private String location;
```

After being developing and testing more services realized that while sending one exam didn't have any problem, while trying to send some at once (or even all of the ones stored in the db), some troubles appeared, so finally a container class called ExamPacks.java was created, the only use of this one was so managed multiple exams at once. So doing it was way easy to manage the exams in the different services provided.

```java
package myRESTwsExam;

import java.util.ArrayList;

public class ExamsPack {
    ArrayList<Exam> values = new ArrayList<Exam>();

    public void addExam(Exam _exam)
    {
        this.values.add(_exam);

    }

    public ArrayList<Exam> getExams()
    {
        return this.values;
    }
}
```

At same time while doing the part of store and retrieve grades from exams, the same structure was followed avoiding having the same problems as before.

So we end with the next structure for both of classes. (Always including the needed setters and getters).

```java
package myRESTwsStudent;

public class Student {

    private String studentid;
    private String grade;
    private String examid;
```

```java
package myRESTwsGrades;

import java.util.ArrayList;

public class Grades {

    private ArrayList<Student> listGrades = new ArrayList<Student>();

    public void addStudent(Student _student)
    {
        this.listGrades.add(_student);

    }

    public ArrayList<Student> getStudents()
    {
        return this.listGrades;
    }


}
```
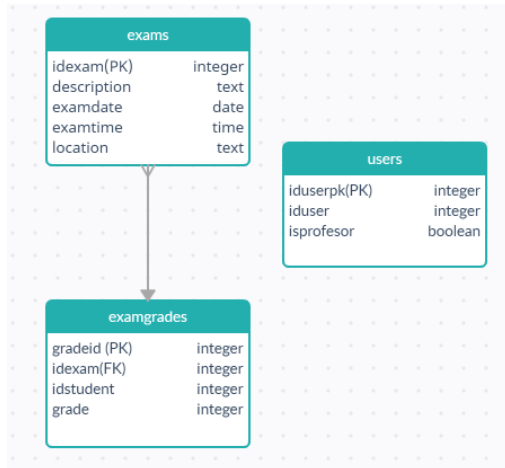
Database

All store/read operations made in the project are always related to a postgressql as database and used the driver we were provided.

The tables used follow the next structure:

In the first steps all classes included some uppercase characters, but the prepareStament did not manage so well with them, seemed like the string provided was forced to a non-uppercase one. So, to avoid that problems all uppercase characters were delete from all table names.

SQL

Examgrades

```
CREATE TABLE public.examgrades
(
    gradeid integer NOT NULL GENERATED ALWAYS AS IDENTITY ( INCREMENT 1 START 1 MINVALUE 1 MAXVALUE 2147483647 CACHE 1 ),
    idstudent integer,
    idexam integer,
    grade integer,
    CONSTRAINT examgrades_pkey PRIMARY KEY (gradeid),
    CONSTRAINT "examsFK" FOREIGN KEY (idexam)
        REFERENCES public.exams (idexam) MATCH SIMPLE
        ON UPDATE NO ACTION
        ON DELETE NO ACTION
        NOT VALID
)
WITH (
    OIDS = FALSE
)
TABLESPACE pg_default;

ALTER TABLE public.examgrades
    OWNER to postgres;
```

Exams

```sql
CREATE TABLE public.exams
(
    idexam integer NOT NULL GENERATED ALWAYS AS IDENTITY ( INCREMENT 1 START 1 MINVALUE 1 MAXVALUE 2147483647 CACHE 1 ),
    description text COLLATE pg_catalog."default" NOT NULL,
    examdate date NOT NULL,
    examtime time without time zone NOT NULL,
    location text COLLATE pg_catalog."default" NOT NULL,
    CONSTRAINT "EXAMS_pkey" PRIMARY KEY (idexam)
)
WITH (
    OIDS = FALSE
)
TABLESPACE pg_default;

ALTER TABLE public.exams
    OWNER to postgres;
```

Users

```sql
CREATE TABLE public.users
(
    iduserpk integer NOT NULL GENERATED ALWAYS AS IDENTITY ( INCREMENT 1 START 1 MINVALUE 1 MAXVALUE 2147483647 CACHE 1 ),
    iduser integer NOT NULL,
    isprofesor boolean NOT NULL,
    CONSTRAINT users_pkey PRIMARY KEY (iduserpk)
)
WITH (
    OIDS = FALSE
)
TABLESPACE pg_default;

ALTER TABLE public.users
    OWNER to postgres;
```

Client

To be able to test the different services and check how they really work a python small program to manage the different options was made. It allow us to use the different gets / posts options and check if them retrieve the correct info from the database connected to the web service

Outputs and executions

Menus

Professor menu

```
Insert ID: 123


****OPTIONS****
*** (a) - Read ALL Exams ***
*** (b) - Insert Exam ***
*** (c) - Modify Exam ***
*** (d) - Delete Exam ***
*** (e) - Read ONE Exam ***
*** (f) - Insert grade/s ***
*** (g) - Download all exams ***
*** (h) - Download one exam ***
*** (i) - Download all grades from an exam ***
*** (j) - Download all grades from a student ***
*** (q) - CLOSE PROGRAM ***
Please select one of the above options: |
```

Student menu

```
Insert ID: 456


****OPTIONS****
*** (a) - Read ALL Exams ***
*** (b) - Read ONE Exam ***
*** (c) - Download all exams ***
*** (d) - Download one exam ***
*** (e) - Download all grades from a student ***
*** (q) - CLOSE PROGRAM ***
Please select one of the above options: |
```

Student

Read all exams (common in both menus)

```
Please select one of the above options: a

***EXAM***
idexam":"2"
"description":"randomDesc"
"examdate":"2021-06-17"
"examtime":"17:00:00"
"location":"lleida"

***EXAM***
"idexam":"3"
"description":"randomDesc"
"examdate":"2021-06-17"
"examtime":"17:00:00"
"location":"lleida"
```

Read one exam (common in both menus)

Id

```
Please select one of the above options: b
Do u want to search it by id or description partial or full? [id/descp/descf/exit] id
Insert id to find: 9

EXAM VALUES:

***EXAM***
idexam":"9"
"description":"randomDesc"
"examdate":"2021-06-17"
"examtime":"17:00:00"
"location":"lleida
```

Partial description

```
Please select one of the above options: b
Do u want to search it by id or description partial or full? [id/descp/descf/exit] descp
Insert partial desc to find: random
```

```
***EXAM***
"idexam":"23"
"description":"randomDesc"
"examdate":"2021-06-17"
"examtime":"17:00:00"
"location":"lleida"

***EXAM***
"idexam":"25"
"description":"random"
"examdate":"2021-06-17"
"examtime":"17:06:00"
"location":"madrid
```

Full description

```
Please select one of the above options: b
Do u want to search it by id or description partial or full? [id/descp/descf/exit] descf
Insert full desc to find: random

EXAM VALUES:

***EXAM***
idexam":"25"
"description":"random"
"examdate":"2021-06-17"
"examtime":"17:06:00"
"location":"madrid
```

Download all exams (common in both menus)

A dialog will open to select file name and path.

```
Please select one of the above options: c
```

```
Archivo  Edición  Formato  Ver  Ayuda
"idexam":"8" "description":"randomDesc" "examdate":"2021-06-17" "examtime":"17:00:00" "location":"lleida"}
{"idexam":"9" "description":"randomDesc" "examdate":"2021-06-17" "examtime":"17:00:00" "location":"lleida"}
{"idexam":"25" "description":"random" "examdate":"2021-06-17" "examtime":"17:06:00" "location":"madrid"
```

## Download one exams (common in both menus)

ID

```
Please select one of the above options: d
Do u want to search it by id or description partial or full? [id/descp/descf/exit] id
Insert id to find: 9
```

testexam9: Bloc de notas

Archivo   Edición   Formato   Ver   Ayuda

idexam":"9" "description":"randomDesc" "examdate":"2021-06-17" "examtime":"17:00:00

Partial description

```
Please select one of the above options: b
Do u want to search it by id or description partial or full? [id/descp/descf/exit] descp
Insert partial desc to find: random
```

all: Bloc de notas

Archivo   Edición   Formato   Ver   Ayuda

"idexam":"8" "description":"randomDesc" "examdate":"2021-06-17" "examtime":"17:00:00" "location":"lleida"}
{"idexam":"9" "description":"randomDesc" "examdate":"2021-06-17" "examtime":"17:00:00" "location":"lleida"}
{"idexam":"25" "description":"random" "examdate":"2021-06-17" "examtime":"17:06:00" "location":"madrid"

Full description

fulldesc: Bloc de notas

Archivo   Edición   Formato   Ver   Ayuda

"idexam":"25" "description":"random" "examdate":"2021-06-17" "examtime":"17:06:00" "location":"madrid"

```
Please select one of the above options: d
Do u want to search it by id or description partial or full? [id/descp/descf/exit] descf
Insert full desc to find: random
```

Download all grades from a student (common in both menus)

```
*** (q)    CLOSE PROGRAM ***
Please select one of the above options: e
Insert the student id to retrieve grades all grades: 22
```

student22: Bloc de notas

Archivo   Edición   Formato   Ver   Ayuda

{"studentid":"22" "grade":"2" "examid":"8"}
{"studentid":"22" "grade":"4" "examid":"8"}
{"studentid":"22" "grade":"4" "examid":"9"

Quit option (common in both menus)

```
Please select one of the above options: q
Quit time
```

Professor

Insert exam

```
Insert exam values
Exam description: ExamTestAA
Exam date: 10/01/2021
Exam time: 18:34
Exam Location: El Palau
Exam added
```

We check that this one is inserted

```
Please select one of the above options: e
Do u want to search it by id or description partial or full? [id/descp/descf/exit] id
Insert id to find: 28

EXAM VALUES:

***EXAM***
idexam":"28"
"description":"ExamTestAA"
"examdate":"2021-01-10"
"examtime":"18:34:00"
"location":"El Palau
```

Modify description

```
Please select one of the above options: c
Insert exam id to modify the description: 28
Insert new description: ExamTestModified
Exam updated
```

Check this one was modified

```
Insert id to find: 28

EXAM VALUES:

***EXAM***
idexam":"28"
"description":"ExamTestModified"
"examdate":"2021-01-10"
"examtime":"18:34:00"
"location":"El Palau
```

Delete exam

```
*** (q) - CLOSE PROGRAM ***
Please select one of the above options: d
Insert exam id to be deleted: 28
Exam deleted or already deleted
```

Check this one is already deleted

```
Please select one of the above options: e
Do u want to search it by id or description partial or full? [id/descp/descf/exit] id
Insert id to find: 28

EXAM VALUES:

exam not found
```

Insert Grades

```
Please select one of the above options: f
Insert exam id to relate the grade: 29
Number of grades to be inserted 3
Insert student id: 123
Student grade 5
Insert student id: 234
Student grade 7
Insert student id: 345
Student grade 3
Grades added / or ignored if already in
```

Check if grades were inserted

exam29: Bloc de notas

Archivo   Edición   Formato   Ver   Ayuda

```
{"studentid":"123" "grade":"5" "examid":"29"}
{"studentid":"234" "grade":"7" "examid":"29"}
{"studentid":"345" "grade":"3" "examid":"29"
```

Download all grades from exam

```
Please select one of the above options: i
Insert the exam id to retrieve the grades: 29
```

exam29: Bloc de notas

Archivo   Edición   Formato   Ver   Ayuda

```
{"studentid":"123" "grade":"5" "examid":"29"}
{"studentid":"234" "grade":"7" "examid":"29"}
{"studentid":"345" "grade":"3" "examid":"29"
```