INVENTION MANAGEMENT

Group 4

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<u>ABSTRACT</u>

The main aim of this project is to develop a system which helps to manage all the invention information that exists in the world wise with the details of inventors, jury who awarded them etc. managing efficiently with convenience. We will develop a complete Java Application with front end and backend. Any user can access the system to view the data by logging in with the valid credentials. Person can also register to the system if he is a new user. If the login credentials are invalid then, an error message will be displayed on the screen accordingly. User can be just a viewer or a one person who can insert the details of the invention (basically an inventor). Inventions can also receive the nominations from the user (only the viewer). It is not mandatory that every inventor should receive the award. Secondary actor Admin updates all the information made by the users. Awards are given by nominations to inventor's inventions for which the jury's decision is final. Jury can login to the system with the valid credentials and can give verdict for the invention based on the nominations. If the jury login credentials are invalid, then error message will be displayed on the screen. On the other hand, database stores the invention details like invention, inventors(s), category (like science, engineering etc), the year of invention, the story behind, awards/recognitions received, the year in which that was received etc. The inventor details include name, country, and job type. The list of jury members, details of nominations, awards can also be maintained in database.

Functional Requirements of System

1. User, Jury needs to register with system before using the application.
2. User login to the system to access the corresponding page. User can be a viewer or an inventor.
3. User can view the details of the invention and can nominate inventor for invention.
4. User will be redirected to his corresponding page on clicking Add_Invention and inserts the details of invention.
5. Jury can give verdict for the invention based on the nominations.
6. Admin will update the data accordingly.

Use cases

1. Sign up
2. Login
3. Invention details
4. Nomination for invention
5. Verdict for invention
6. Awards achieved
7. Update Info

Actors and their functionalities:

1. **User:**
   - User needs to register with system and login with the valid credentials. He can nominate for the invention and can view the details of the invention.
   - User can also insert details of the invention

2. **Jury**
   - Jury registers and login to the system and can give verdict for the invention based on the nominations.

3. **Admin**
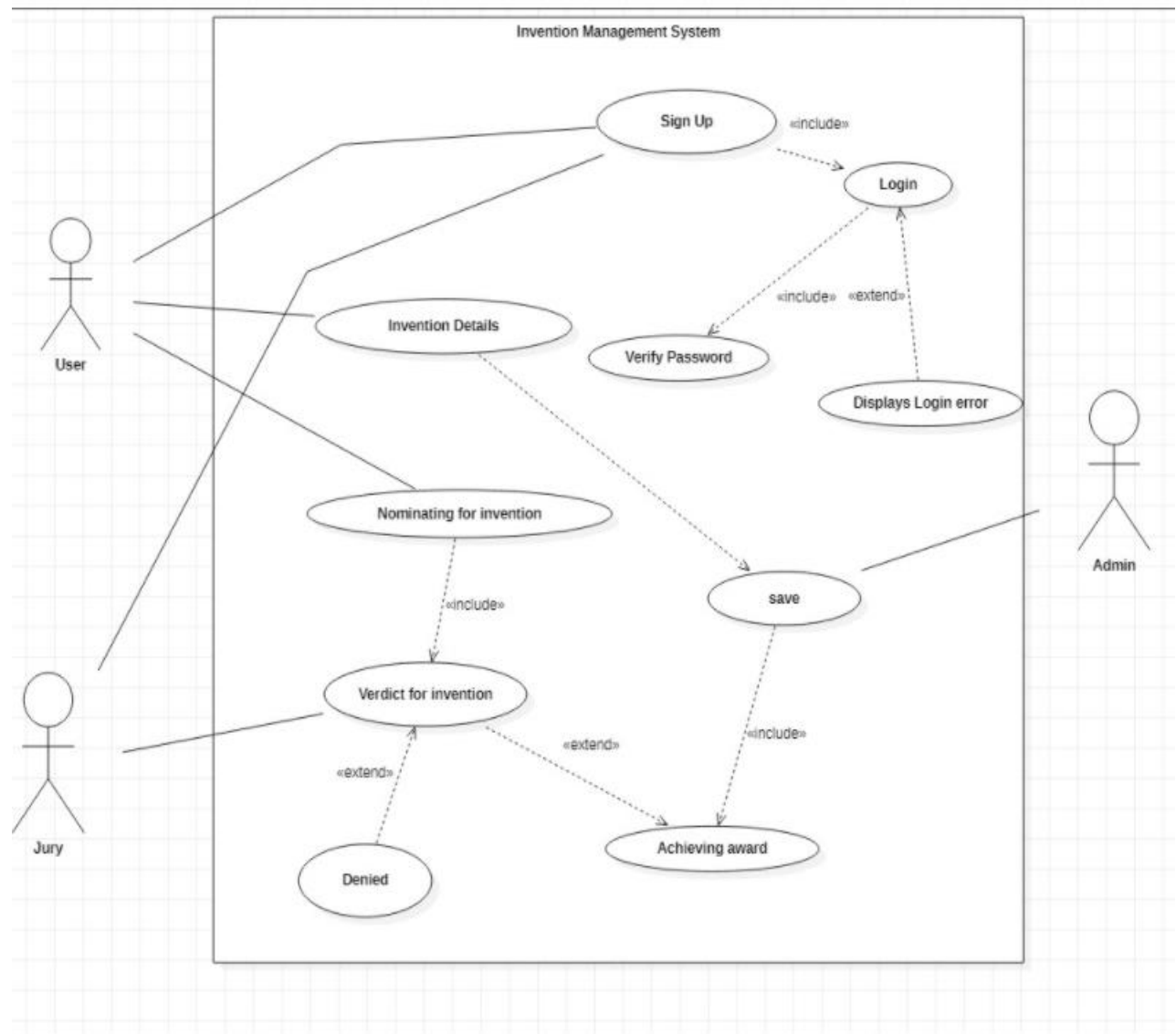   - Admin updates the info of the user, inventor, and jury.

Use case Description

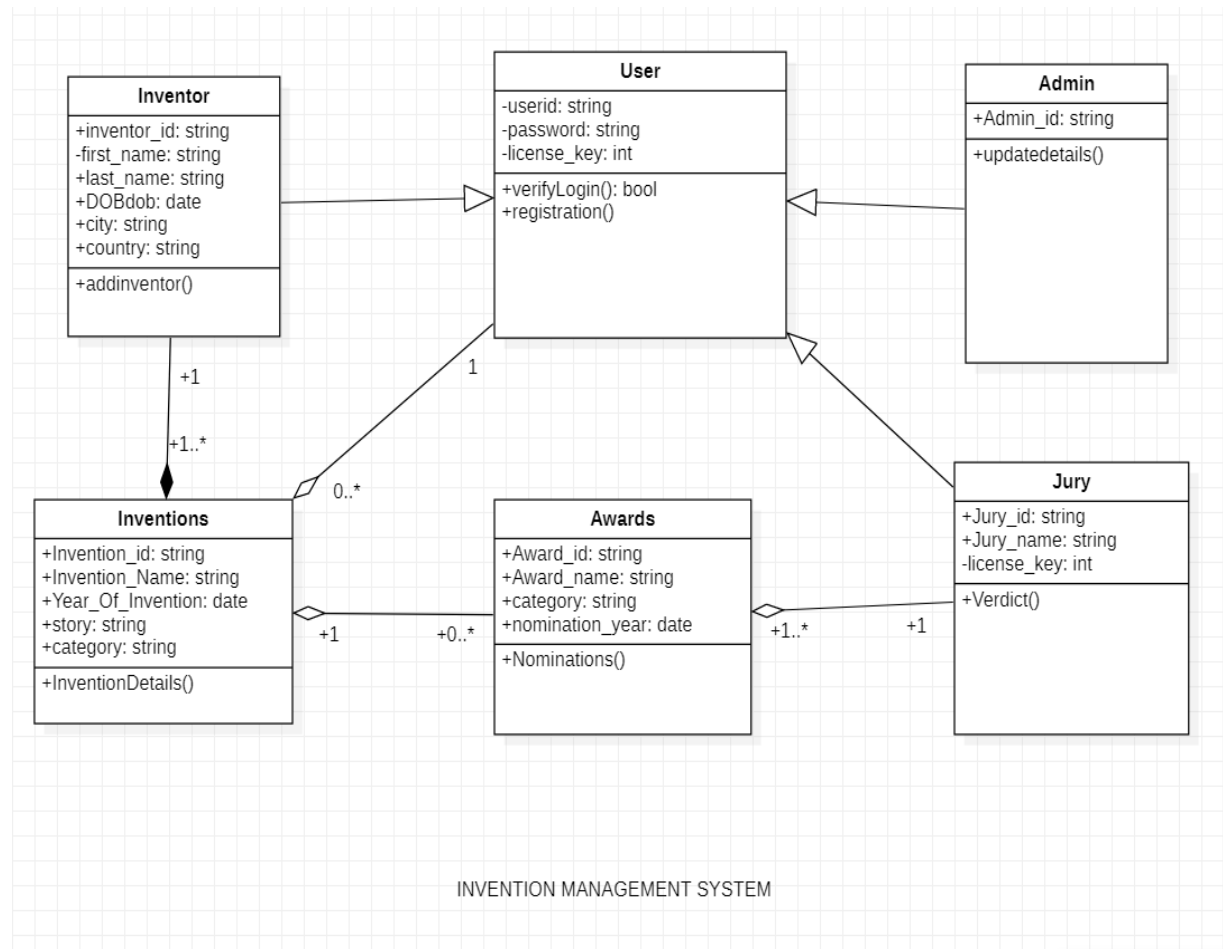| Use case ID	Login
Brief description	The user can access to the system using username and password
Primary actors	User, Jury
Precondition	Users, jury must register first to the system and should have a valid login credentials.
Post condition	If not registered the user, jury must register first and can perform their actions.
Main success Scenario	If credentials are valid then users and jury are directed to their corresponding page where they can perform their actions.

Actor Action	System response
1. The user enters valid login credentials and clicks on login button	2. Performs validation of login credentials. If valid user, provides access to their pages.
3. The user (viewer) gets access to the page and clicks on invention button.	4. Presents the details of inventions.
5. If user (viewer) clicks on Nomination button (not mandatory)	6. Presents the details of invention to nominate.
7. The user (new inventor) can get access to the page he can request for entry of his invention.	8. Presents the form to be filled for invention entries.
Alternate flow	
	2a. If not a valid user, system returns error message.

Actor action	System response
1. Jury enters valid logi n credentials and clicks on login button	2. Performs validation of login credentials. If valid user, provides access to their pages.
3. Jury clicks jury panel button.	4. Presents the awards details and requests to finalize the award to new invention.
5. Jury approves the invention	6. Presents the details to which the award is granted.
Alternate flow	
	2a. If not a valid jury, system returns error message.

Use case Diagram
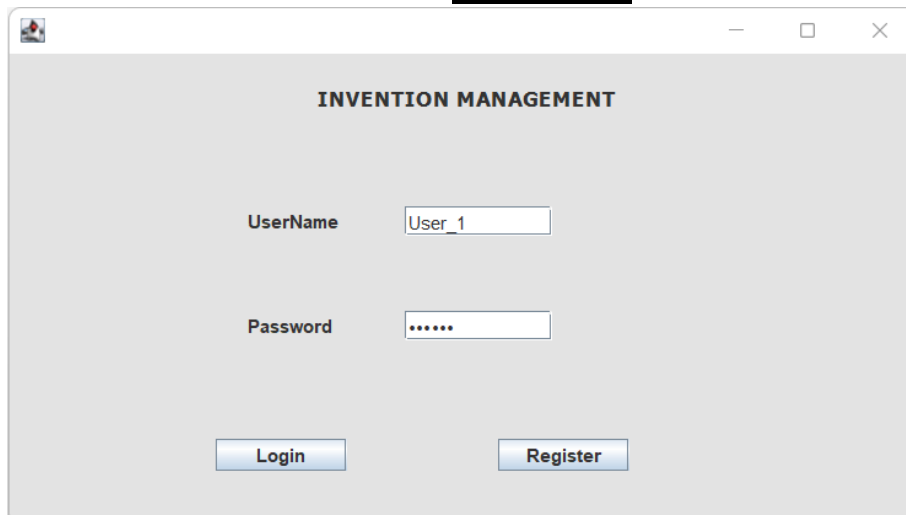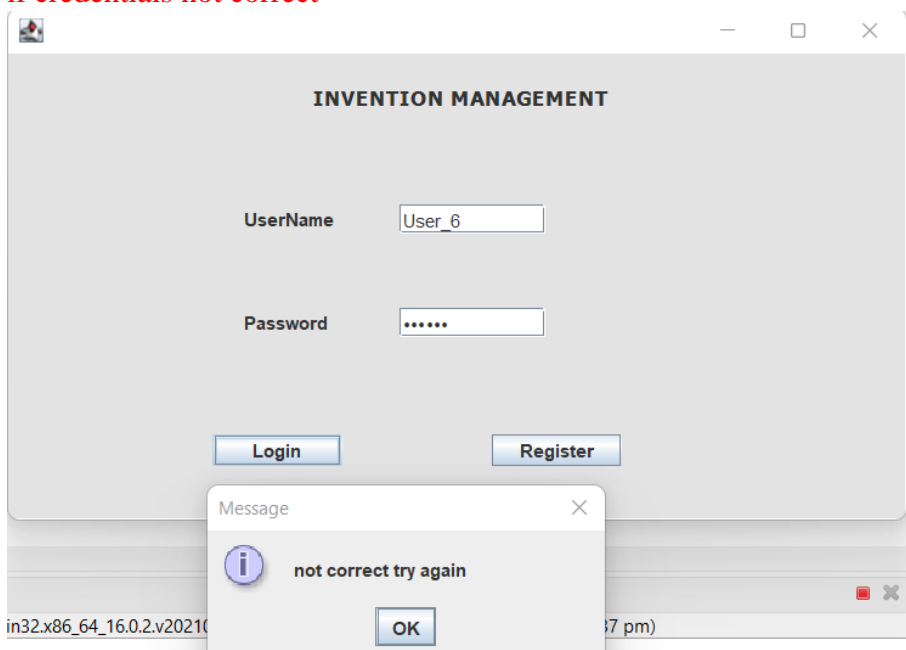
Use case diagram for the Invention Management System showing actors User, Jury, and Admin interacting with use cases: Sign Up, Login, Verify Password, Displays Login error, Invention Details, Nominating for invention, save, Verdict for invention, Denied, and Achieving award. Relationships include «include» and «extend».

Class Diagram:

Inventor
+inventor_id: string
-first_name: string
+last_name: string
+DOBdob: date
+city: string
+country: string

+addinventor()

User
-userid: string
-password: string
-license_key: int

+verifyLogin(): bool
+registration()

Admin
+Admin_id: string

+updatedetails()

+1

+1..*

1

0..*

Inventions
+Invention_id: string
+Invention_Name: string
+Year_Of_Invention: date
+story: string
+category: string

+InventionDetails()

Awards
+Award_id: string
+Award_name: string
+category: string
+nomination_year: date

+Nominations()

Jury
+Jury_id: string
+Jury_name: string
-license_key: int

+Verdict()

+1   +0..*   +1..*   +1

INVENTION MANAGEMENT SYSTEM

User Interface design

if credentials not correct

Registration Form

UserName   User_6

License_key(if Jury)

PASSWORD   ••••••

CONFIRM PASSWORD   ••••••

REGISTER   RESET

Message

ℹ **Data Registered Successfully**

OK

Registration Form

UserName   User_7

License_key(if Jury)   lk_7

PASSWORD   ••••••

CONFIRM PASSWORD   ••••••

REGISTER   RESET

Message

ℹ **Data Registered Successfully**

OK
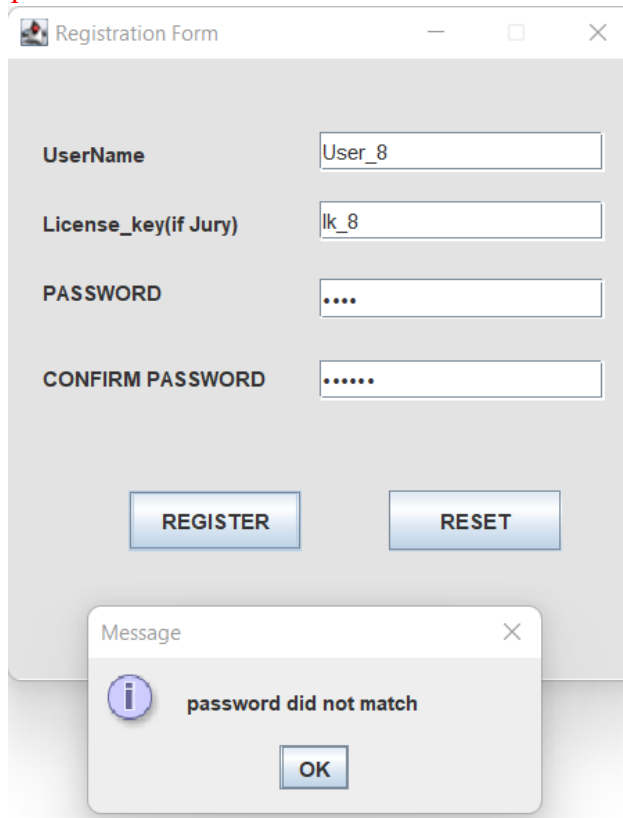
If password doesn't match
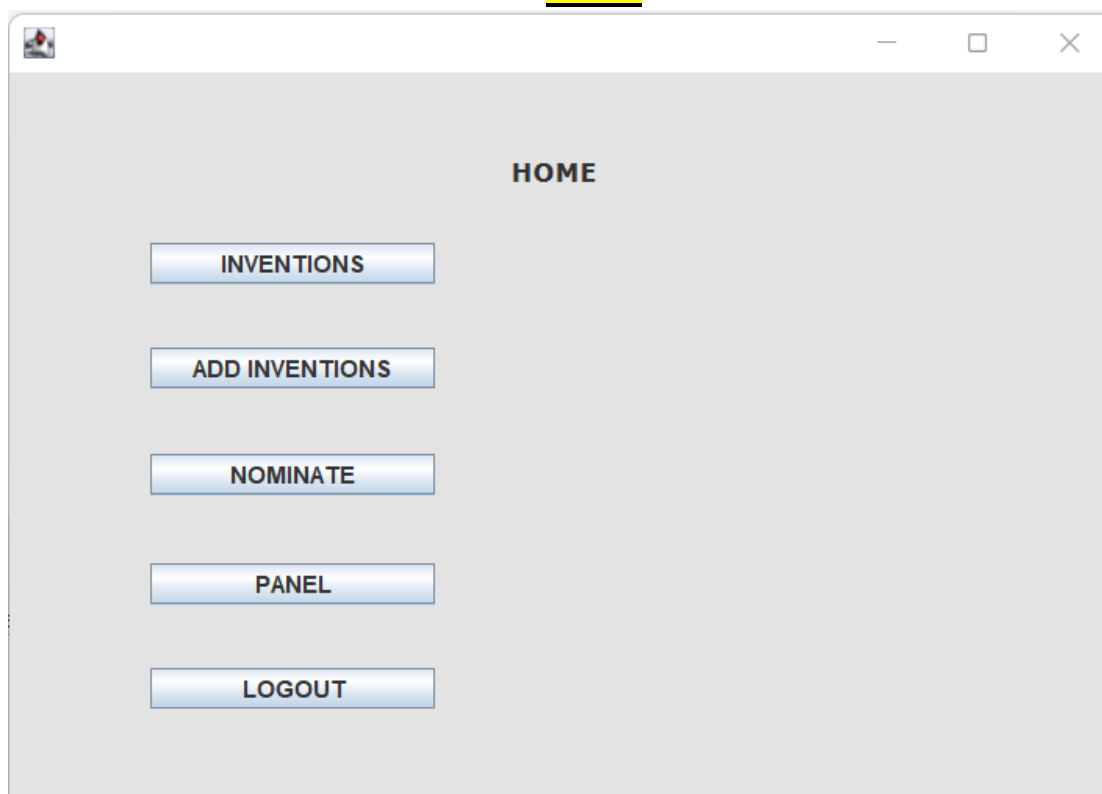
UserName — User_8

License_key(if Jury) — lk_8

PASSWORD — ....

CONFIRM PASSWORD — ......

REGISTER   RESET

Message

(i) **password did not match**

OK

Home

HOME

INVENTIONS

ADD INVENTIONS

NOMINATE

PANEL

LOGOUT

Invention_details

Search Database

Enter Invention_Id   Inv_1001

[Fetch Data]   [Reset Data]

Database Results

Invention...	Invention...	Year_of_I...	Category	Story
Inv_1001	Steam e...	1956	External t...	zyx

If invention_id not found

Search Database

Enter Invention_Id   Inv_1006

[Fetch Data]   [Reset Data]

Message

No Such Invention_Id Found

[OK]

Add Invention

Invention_id	Inv_1007

invention_id	invention_name	category	story	year_of_inventi..
Inv_1001	Steam engine	External tools	zyx	1956
Inv_1002	Automobile	Motorcycles	wvu	1900
Inv_1003	Robot	Robotics	rst	2005
Inv_1004	Telivision	Electronic devi...	opq	1914
Inv_1005	IPods	Electronic devi...	def	1923

Invention_name	Airconditioner

Category	Accessories

Story	Ac

Year_of_invention	2005

Save   **Load data**

Add Invention

Invention_id	Inv_1007

invention_id	invention_name	category	story	year_of_inventi..
Inv_1001	Steam engine	External tools	zyx	1956
Inv_1002	Automobile	Motorcycles	wvu	1900
Inv_1003	Robot	Robotics	rst	2005
Inv_1004	Telivision	Electronic devi...	opq	1914
Inv_1005	IPods	Electronic devi...	def	1923

Invention_name	Airconditioner

Category	Accessories

Story	Ac

Year_of_invention	2005

Save   **Load data**

Message ✕

ⓘ **Data saved**

OK

Add Invention

Invention_id   Inv_1007

Invention_name   Airconditioner

Category   Accessories

Story   Ac

Year_of_invention   2005

Save

invention_id	invention_name	category	story	year_of_inventi..
Inv_1001	Steam engine	External tools	zyx	1956
Inv_1002	Automobile	Motorcycles	wvu	1900
Inv_1003	Robot	Robotics	rst	2005
Inv_1004	Telivision	Electronic devi..	opq	1914
Inv_1005	IPods	Electronic devi..	def	1923
Inv_1007	Airconditioner	Accessories	Ac	2005

Load data

Nominate

Nominate

Invention_id   Inv_1007

Award_id   Awr_1001

Year_of_Nomination   2002

Nominate

invention_id	award_id	year_of_nomination
Inv_1001	Awr_1001	1986
Inv_1002	Awr_1002	1925
Inv_1003	Awr_1003	2009
Inv_1004	Awr_1004	2001
Inv_1005	Awr_1005	2000

Load data

Nominate

Invention_id   Inv_1007

Award_id   Awr_1001

Year_of_Nomination   2002

[Nominate]

invention_id	award_id	year_of_nomination
Inv_1001	Awr_1001	1986
Inv_1002	Awr_1002	1925
Inv_1003	Awr_1003	2009
Inv_1004	Awr_1004	2001
Inv_1005	Awr_1005	2000

[Load data]

Message ✕

ⓘ **Data saved**

[OK]

Nominate

Invention_id   Inv_1007

Award_id   Awr_1001

Year_of_Nomination   2002

[Nominate]

invention_id	award_id	year_of_nomination
Inv_1001	Awr_1001	1986
Inv_1002	Awr_1002	1925
Inv_1003	Awr_1003	2009
Inv_1004	Awr_1004	2001
Inv_1005	Awr_1005	2000
Inv_1007	Awr_1001	2002

[Load data]

Jury verdict

Jury Login

Jury_Id `User_2`

License_key `••••`

[Login]

Jury

Invention_id `Inv_1007`

Award_id `Awr_1007`

Award_name `Siima`

Jury_id `Ju_1002`

[Verdict]

invention_id	award_id	award_name	jury_id
Inv_1001	Awr_1001	Siima	Ju_1001
Inv_1002	Awr_1002	Ballon-dor	Ju_1002
Inv_1003	Awr_1003	Best_inventi...	Ju_1003
Inv_1004	Awr_1004	Peoples_aw...	Ju_1004
Inv_1005	Awr_1005	Creative_aw...	Ju_1005

[Load Data]

Jury

Invention_id   Inv_1007

Award_id   Awr_1007

Award_name   Siima

Jury_id   Ju_1002

Verdict

invention_id	award_id	award_name	jury_id
Inv_1001	Awr_1001	Siima	Ju_1001
Inv_1002	Awr_1002	Ballon-dor	Ju_1002
Inv_1003	Awr_1003	Best_inventi...	Ju_1003
Inv_1004	Awr_1004	Peoples_aw...	Ju_1004
Inv_1005	Awr_1005	Creative_aw...	Ju_1005

Load Data

Message

ℹ **Data saved**

OK