YILDIZ TECHNICAL UNIVERSITY

Department of Computer Engineering
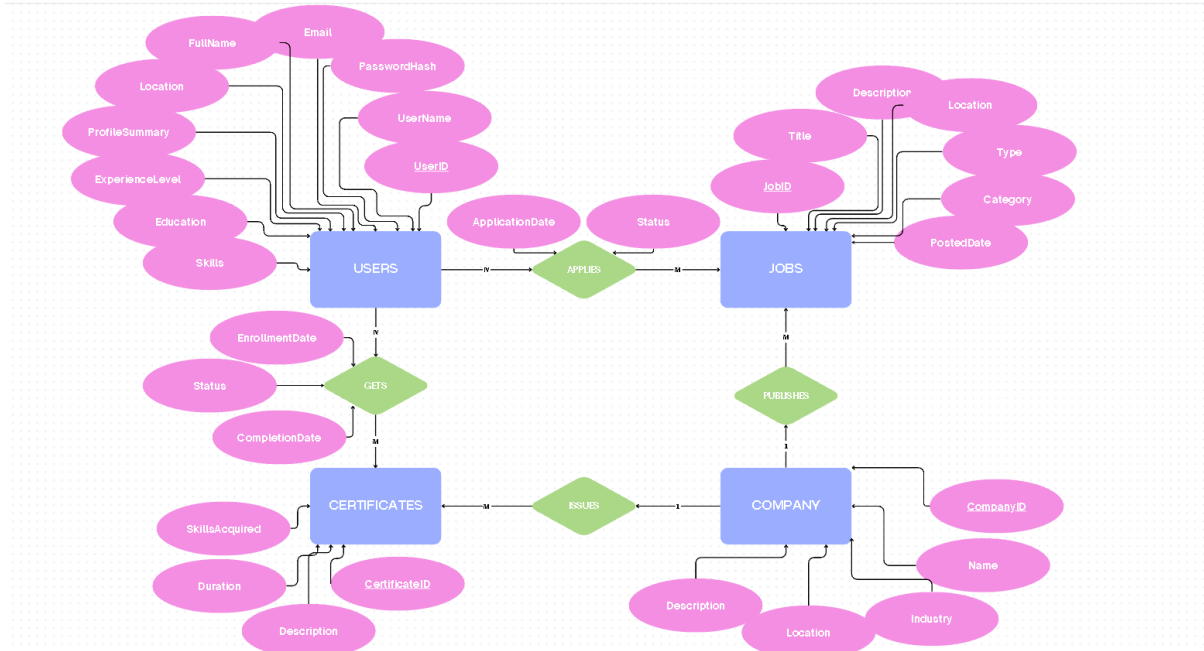
Veritabanı Yönetimi Dönem Projesi

Mehmet Emin Aydin   20011011
Yiğit Can Hacer   21011074

emin.aydin@ std.yildiz.edu.tr
can.hacer@std.yildiz.edu.tr

Ders Koordinatörü: M. Utku Kalay

İş Başvuru Sistemi ER Diyagramı

'Companies' Tablosu

	companyid [PK] integer	name character varying (255)	industry character varying (255)	location character varying (255)	description text
1	1	ABC Company	Technology	New York	Leading tech company specializing in software de…
2	2	XYZ Corporation	Finance	London	Global financial services provider.
3	3	Tech Innovators	Technology	San Francisco	Innovative technology solutions provider.
4	4	Global Motors	Automotive	Detroit	Leading car manufacturing company.
5	5	Green Energy Solutions	Energy	Berlin	Renewable energy solutions for a sustainable futur…
6	6	Fashion Trends	Fashion	Paris	Trendsetting fashion company.
7	7	Healthcare Innovations	Healthcare	Boston	Revolutionizing healthcare with cutting-edge soluti…
8	8	Creative Studios	Media	Los Angeles	Multimedia content creation and production.
9	9	Food Delights	Food	Tokyo	Delicious and diverse food products.
10	10	Green Earth Foundation	Environment	Amsterdam	Working towards a greener and healthier planet.
11	11	Innovative Robotics	Technology	Seoul	Pioneering advancements in robotics.
12	12	Global Consultants	Business	Singapore	Strategic consulting services for businesses world…
13	13	Space Explorations	Aerospace	Houston	Exploring the cosmos with advanced aerospace te…
14	14	Travel Adventures	Travel	Sydney	Creating unforgettable travel experiences worldwid…
15	15	Educational Insights	Education	Toronto	Empowering education through innovative solutio…
16	16	Sports Dynamics	Sports	Rio de Janeiro	Promoting sports excellence and fitness.
17	17	Urban Architects	Architecture	Dubai	Designing the future with architectural innovations.
18	18	Oceanic Discoveries	Marine	Cape Town	Exploring the wonders of the ocean with marine re…
19	19	Global Pharma Solutions	Pharmaceuticals	Mumbai	Advancing healthcare through pharmaceutical inn…
20	20	Artistic Creations	Art	Barcelona	Celebrating creativity through diverse artistic expre…

'Jobs' Tablosu

	jobid [PK] integer	employerId integer	title character varying (255)	description text	location character varying (255)	type character varying (100)	category character varying (100)	posteddate date
1	1	1	Senior Software Developer	Lead a team of developers to cr…	New York	Full-time	Technology	2024-01-06
2	2	2	Financial Analyst	Conduct financial analysis and …	London	Full-time	Finance	2024-01-06
3	3	3	Machine Learning Engineer	Develop machine learning mod…	San Francisco	Full-time	Technology	2024-01-06
4	4	4	Automotive Design Engine…	Lead the design team in creatin…	Detroit	Full-time	Automotive	2024-01-06
5	5	5	Renewable Energy Speciali…	Research and implement sustai…	Berlin	Full-time	Energy	2024-01-06
6	6	6	Fashion Stylist	Set trends and create unique fa…	Paris	Part-time	Fashion	2024-01-06
7	7	7	Healthcare Researcher	Conduct research to advance m…	Boston	Full-time	Healthcare	2024-01-06
8	8	8	Multimedia Content Produ…	Produce engaging multimedia c…	Los Angeles	Full-time	Media	2024-01-06
9	9	9	Culinary Specialist	Explore and create diverse and …	Tokyo	Part-time	Food	2024-01-06
10	10	10	Environmental Conservati…	Work towards a greener and he…	Amsterdam	Full-time	Environment	2024-01-06
11	11	11	Robotics Programmer	Program and develop innovativ…	Seoul	Full-time	Technology	2024-01-06
12	12	12	Strategic Business Consult…	Provide strategic consulting ser…	Singapore	Full-time	Business	2024-01-06
13	13	13	Astrophysicist	Study the cosmos and contribut…	Houston	Full-time	Aerospace	2024-01-06
14	14	14	Travel Experience Curator	Curate and plan unforgettable t…	Sydney	Part-time	Travel	2024-01-06
15	15	15	Educational Technology In…	Innovate and implement techno…	Toronto	Full-time	Education	2024-01-06
16	16	16	Sports Performance Coach	Train athletes and promote spo…	Rio de Janeiro	Full-time	Sports	2024-01-06
17	17	17	Architectural Designer	Design innovative architectural …	Dubai	Full-time	Architecture	2024-01-06
18	18	18	Marine Biologist	Explore and study marine life fo…	Cape Town	Full-time	Marine	2024-01-06
19	19	19	Pharmaceutical Research …	Contribute to pharmaceutical a…	Mumbai	Full-time	Pharmaceuticals	2024-01-06
20	20	20	Visual Artist	Express creativity through vario…	Barcelona	Part-time	Art	2024-01-06

'Certificates' Tablosu

	certificateId [PK] integer	companyId integer	name character varying (255)	description text	duration character varying (100)	skillsacquired text
1	1	1	Java Developer Certification	Certification for Java programming pr…	3 months	Java Programming, Software Dev…
2	2	2	Finance Analytics Specialist	Specialized certification in financial an…	2 months	Financial Analysis, Data Analytics…
3	3	3	Machine Learning Fundamentals	Fundamental concepts of machine lea…	4 months	Machine Learning Basics, Data Sci…
4	4	4	Automotive Design Mastery	Master the art of automotive design pri…	6 months	Automotive Design, CAD Modeling
5	5	5	Renewable Energy Technologies	Understanding and implementing rene…	5 months	Renewable Energy, Sustainability
6	6	6	Fashion Styling Techniques	Techniques and trends in fashion stylin…	3 months	Fashion Styling, Trend Analysis
7	7	7	Healthcare Management Certification	Certification in healthcare managemen…	4 months	Healthcare Management, Medical …
8	8	8	Multimedia Content Creation	Creating engaging multimedia content.	6 months	Video Production, Graphic Design
9	9	9	Culinary Arts Mastery	Mastering the art and science of culina…	8 months	Culinary Techniques, Menu Planni…
10	10	10	Environmental Conservation Strategies	Strategies for effective environmental c…	5 months	Environmental Conservation, Sust…
11	11	11	Advanced Robotics Programming	Advanced programming for robotics s…	6 months	Robotics Programming, AI
12	12	12	Strategic Business Consulting	Strategies and tactics for strategic bus…	4 months	Business Strategy, Consulting
13	13	13	Astronomy and Astrophysics	Exploring the wonders of astronomy a…	7 months	Astronomy, Astrophysics
14	14	14	Travel Planning and Management	Planning and managing travel experie…	3 months	Travel Planning, Tourism Manage…
15	15	15	Educational Technology Innovations	Innovative technologies in education.	5 months	Educational Technology, E-Learning
16	16	16	Sports Performance Coaching	Coaching techniques for sports perfor…	6 months	Sports Coaching, Fitness Training
17	17	17	Architectural Design Principles	Principles and practices of architectura…	8 months	Architectural Design, Urban Plann…
18	18	18	Marine Biology Fundamentals	Fundamental concepts of marine biolo…	4 months	Marine Biology, Oceanography
19	19	19	Pharmaceutical Research and Development	Research and development in pharmac…	7 months	Pharmaceutical Research, Drug D…
20	20	20	Visual Arts Exploration	Exploring various forms of visual arts.	6 months	Painting, Sculpture, Digital Art

'Users' Tablosu

	userId [PK] integer	username character varying (25	passwordhash character varying	email character varying (255)	fullname character varyin	location character varyi	profilesummary text	experiencelevel character varying (	education text	skills text
1	1	john_doe	hashed_pass...	john.doe@email.com	John Doe	New York	Experienced sof...	Senior	BS in Com...	Java, Pyt...
2	2	jane_smith	hashed_pass...	jane.smith@email.com	Jane Smith	London	Finance profess...	Mid-level	MBA in Fi...	Financial ...
3	3	tech_enthusiast	hashed_pass...	tech.enthusiast@email...	Tech Enthusiast	San Francis...	Passionate abo...	Entry-level	B.Tech in ...	Program...
4	4	auto_engineer	hashed_pass...	auto.engineer@email.c...	Auto Engineer	Detroit	Automotive eng...	Senior	MS in Mec...	Automoti...
5	5	renewable_energy...	hashed_pass...	renewable.energy@ema...	Renewable Ene...	Berlin	Dedicated to su...	Mid-level	Ph.D. in R...	Solar Ene...
6	6	fashionista	hashed_pass...	fashionista@email.com	Fashionista	Paris	Setting fashion ...	Entry-level	Fashion D...	Fashion ...
7	7	healthcare_innov...	hashed_pass...	healthcare.innovator@...	Healthcare Inn...	Boston	Innovating heal...	Senior	MD in Me...	Medical R...
8	8	media_creator	hashed_pass...	media.creator@email.c...	Media Creator	Los Angeles	Creative mind b...	Mid-level	Bachelor i...	Video Edi...
9	9	food_enthusiast	hashed_pass...	food.enthusiast@email...	Food Enthusiast	Tokyo	Exploring divers...	Entry-level	Culinary A...	Culinary ...
10	10	environmentalist	hashed_pass...	environmentalist@ema...	Environmentali...	Amsterdam	Passionate abo...	Senior	Ph.D. in E...	Sustaina...
11	11	robotics_expert	hashed_pass...	robotics.expert@email...	Robotics Expert	Seoul	Leading advanc...	Mid-level	MS in Rob...	Robotics ...
12	12	business_consult...	hashed_pass...	business.consultant@e...	Business Cons...	Singapore	Strategic consul...	Senior	MBA in Bu...	Strategic ...
13	13	space_enthusiast	hashed_pass...	space.enthusiast@ema...	Space Enthusi...	Houston	Passionate abo...	Entry-level	B.Sc. in As...	Space Ex...
14	14	travel_adventurer	hashed_pass...	travel.adventurer@ema...	Travel Adventu...	Sydney	Creating unforg...	Mid-level	Tourism a...	Destinati...
15	15	education_innova...	hashed_pass...	education.innovator@e...	Education Inno...	Toronto	Empowering ed...	Senior	Ph.D. in E...	Educatio...
16	16	sports_enthusiast	hashed_pass...	sports.enthusiast@em...	Sports Enthusi...	Rio de Jane...	Promoting spor...	Entry-level	Bachelor i...	Athlete Tr...
17	17	architectural_desi...	hashed_pass...	architectural.designer@...	Architectural D...	Dubai	Designing the f...	Mid-level	Master in ...	Architect...
18	18	marine_explorer	hashed_pass...	marine.explorer@email...	Marine Explorer	Cape Town	Exploring the w...	Senior	Oceanogr...	Marine Bi...
19	19	pharma_scientist	hashed_pass...	pharma.scientist@ema...	Pharma Scient...	Mumbai	Advancing heal...	Mid-level	Pharmace...	Drug Dev...
20	27	123	123456	123	123			Entry-level		

'Applications' Tablosu

	applicationId integer	jobId [PK] integer	userId [PK] integer	applicationdate date	status character varying (100)
1	11	1	27	2024-01-12	Pending
2	17	2	27	2024-01-12	Pending
3	4	4	16	2024-01-10	Pending
4	6	6	5	2024-01-12	Pending
5	18	6	27	2024-01-12	Pending
6	7	7	1	2024-01-13	Pending
7	9	9	18	2024-01-15	Pending
8	11	11	2	2024-01-17	Pending
9	12	12	15	2024-01-18	Pending
10	13	13	10	2024-01-19	Pending
11	14	14	19	2024-01-20	Pending
12	15	15	8	2024-01-21	Pending
13	16	16	12	2024-01-22	Pending
14	17	17	17	2024-01-23	Pending
15	18	18	14	2024-01-24	Pending
16	19	19	4	2024-01-25	Pending
17	20	20	6	2024-01-26	Pending

'UserCertificates' Tablosu

	usercertificateld integer	userld [PK] integer	certificateld [PK] integer	enrollmentdate date	completiondate date	status character varying (100)
1	11	2	11	2024-01-17	2024-04-17	Completed
2	1	3	1	2024-01-07	2024-04-07	Completed
3	19	4	19	2024-01-25	2024-08-25	Completed
4	6	5	6	2024-01-12	2024-06-12	Completed
5	20	6	20	2024-01-26	[null]	Enrolled
6	2	7	2	2024-01-08	2024-03-08	Completed
7	15	8	15	2024-01-21	2024-06-21	Completed
8	10	9	10	2024-01-16	2024-09-16	Completed
9	13	10	13	2024-01-19	2024-08-19	Completed
10	3	11	3	2024-01-09	2024-05-09	In Progress
11	16	12	16	2024-01-22	2024-07-22	Completed
12	8	13	8	2024-01-14	2024-07-14	Completed
13	18	14	18	2024-01-24	2024-09-24	Completed
14	12	15	12	2024-01-18	2024-05-18	In Progress
15	4	16	4	2024-01-10	[null]	Enrolled
16	17	17	17	2024-01-23	[null]	Enrolled
17	9	18	9	2024-01-15	[null]	Enrolled
18	14	19	14	2024-01-20	[null]	Enrolled
19	7	27	7	2024-01-13	2024-05-13	In Progress

- **"Oluşturacağınız veritabanı en az 4 tablo içermelidir." için;**

-- Create Companies Table
CREATE TABLE Companies (
    CompanyID SERIAL NOT NULL PRIMARY KEY,
    Name VARCHAR(255) NOT NULL,
    Industry VARCHAR(255) NOT NULL,
    Location VARCHAR(255) NOT NULL,
    Description TEXT
);

-- Create Users Table
CREATE TABLE Users (
    UserID SERIAL NOT NULL PRIMARY KEY,
    Username VARCHAR(255) NOT NULL,
    PasswordHash VARCHAR(255) NOT NULL,
    Email VARCHAR(255) NOT NULL,
    FullName VARCHAR(255) NOT NULL,
    Location VARCHAR(255) ,
    ProfileSummary TEXT,
    ExperienceLevel VARCHAR(255),
    Education TEXT,
    Skills TEXT
);

ALTER TABLE Users ADD CONSTRAINT password_hash_size_check CHECK (LENGTH(PasswordHash) >= 6);
-- Create Jobs Table
CREATE TABLE Jobs (

```sql
    JobID SERIAL PRIMARY KEY,
    EmployerID INT NOT NULL,
    Title VARCHAR(255) NOT NULL,
    Description TEXT,
    Location VARCHAR(255) NOT NULL,
    Type VARCHAR(100),
    Category VARCHAR(100) NOT NULL,
    PostedDate DATE NOT NULL,
    FOREIGN KEY (EmployerID) REFERENCES Companies(CompanyID) ON UPDATE CASCADE ON
DELETE CASCADE
);

-- Create Applications Table
CREATE TABLE Applications (
    ApplicationID SERIAL,
    JobID INT NOT NULL,
    UserID INT NOT NULL,
    ApplicationDate DATE NOT NULL,
    Status VARCHAR(100) NOT NULL,
        PRIMARY KEY(JobID,UserID),
    FOREIGN KEY (JobID) REFERENCES Jobs(JobID) ON UPDATE CASCADE ON DELETE CASCADE,
    FOREIGN KEY (UserID) REFERENCES Users(UserID) ON UPDATE CASCADE ON DELETE
CASCADE

);

-- Create Certificates Table
CREATE TABLE Certificates (
    CertificateID SERIAL PRIMARY KEY,
    CompanyID INT NOT NULL DEFAULT 0,
    Name VARCHAR(255),
    Description TEXT,
    Duration VARCHAR(100),
    SkillsAcquired TEXT,
    FOREIGN KEY (CompanyID) REFERENCES Companies(CompanyID) ON UPDATE CASCADE ON
DELETE SET DEFAULT
);

-- Create UserCertificates Table
CREATE TABLE UserCertificates (
    UserCertificateID SERIAL ,
    UserID INT,
    CertificateID INT DEFAULT 0,
    EnrollmentDate DATE,
    CompletionDate DATE,
    Status VARCHAR(100),
        PRIMARY KEY (UserID,CertificateID),
    FOREIGN KEY (UserID) REFERENCES Users(UserID) ON UPDATE CASCADE ON DELETE
CASCADE,
    FOREIGN KEY (CertificateID) REFERENCES Certificates(CertificateID) ON UPDATE CASCADE ON
DELETE SET DEFAULT
);
```

- **"Her tabloda en az 10 kayıt bulunmalıdır." İçin;**

```sql
INSERT INTO Companies (Name, Industry, Location, Description) VALUES
('ABC Company', 'Technology', 'New York', 'Leading tech company specializing in software development.'),
('XYZ Corporation', 'Finance', 'London', 'Global financial services provider.'),
('Tech Innovators', 'Technology', 'San Francisco', 'Innovative technology solutions provider.'),
('Global Motors', 'Automotive', 'Detroit', 'Leading car manufacturing company.'),
```

('Green Energy Solutions', 'Energy', 'Berlin', 'Renewable energy solutions for a sustainable future.'),
('Fashion Trends', 'Fashion', 'Paris', 'Trendsetting fashion company.'),
('Healthcare Innovations', 'Healthcare', 'Boston', 'Revolutionizing healthcare with cutting-edge solutions.'),
('Creative Studios', 'Media', 'Los Angeles', 'Multimedia content creation and production.'),
('Food Delights', 'Food', 'Tokyo', 'Delicious and diverse food products.'),
('Green Earth Foundation', 'Environment', 'Amsterdam', 'Working towards a greener and healthier planet.'),
('Innovative Robotics', 'Technology', 'Seoul', 'Pioneering advancements in robotics.'),
('Global Consultants', 'Business', 'Singapore', 'Strategic consulting services for businesses worldwide.'),
('Space Explorations', 'Aerospace', 'Houston', 'Exploring the cosmos with advanced aerospace technology.'),
('Travel Adventures', 'Travel', 'Sydney', 'Creating unforgettable travel experiences worldwide.'),
('Educational Insights', 'Education', 'Toronto', 'Empowering education through innovative solutions.'),
('Sports Dynamics', 'Sports', 'Rio de Janeiro', 'Promoting sports excellence and fitness.'),
('Urban Architects', 'Architecture', 'Dubai', 'Designing the future with architectural innovations.'),
('Oceanic Discoveries', 'Marine', 'Cape Town', 'Exploring the wonders of the ocean with marine research.'),
('Global Pharma Solutions', 'Pharmaceuticals', 'Mumbai', 'Advancing healthcare through pharmaceutical innovations.'),
('Artistic Creations', 'Art', 'Barcelona', 'Celebrating creativity through diverse artistic expressions.');

INSERT INTO Users (Username, PasswordHash, Email, FullName, Location, ProfileSummary, ExperienceLevel, Education, Skills) VALUES
('john_doe', 'hashed_password_1', 'john.doe@email.com', 'John Doe', 'New York', 'Experienced software developer', 'Senior', 'BS in Computer Science', 'Java, Python, JavaScript'),
('jane_smith', 'hashed_password_2', 'jane.smith@email.com', 'Jane Smith', 'London', 'Finance professional with a global perspective', 'Mid-level', 'MBA in Finance', 'Financial Analysis, Risk Management, Excel'),
('tech_enthusiast', 'hashed_password_3', 'tech.enthusiast@email.com', 'Tech Enthusiast', 'San Francisco', 'Passionate about the latest tech trends', 'Entry-level', 'B.Tech in Computer Engineering', 'Programming, Machine Learning, Cloud Computing'),
('auto_engineer', 'hashed_password_4', 'auto.engineer@email.com', 'Auto Engineer', 'Detroit', 'Automotive engineering expert', 'Senior', 'MS in Mechanical Engineering', 'Automotive Design, CAD, Manufacturing'),
('renewable_energy_pro', 'hashed_password_5', 'renewable.energy@email.com', 'Renewable Energy Pro', 'Berlin', 'Dedicated to sustainable energy solutions', 'Mid-level', 'Ph.D. in Renewable Energy', 'Solar Energy, Wind Power, Energy Policy'),
('fashionista', 'hashed_password_6', 'fashionista@email.com', 'Fashionista', 'Paris', 'Setting fashion trends with style', 'Entry-level', 'Fashion Design Degree', 'Fashion Styling, Pattern Making, Trend Analysis'),
('healthcare_innovator', 'hashed_password_7', 'healthcare.innovator@email.com', 'Healthcare Innovator', 'Boston', 'Innovating healthcare for a healthier world', 'Senior', 'MD in Medicine', 'Medical Research, Healthcare Management, Public Health'),
('media_creator', 'hashed_password_8', 'media.creator@email.com', 'Media Creator', 'Los Angeles', 'Creative mind behind multimedia content', 'Mid-level', 'Bachelor in Film Production', 'Video Editing, Graphic Design, Cinematography'),
('food_enthusiast', 'hashed_password_9', 'food.enthusiast@email.com', 'Food Enthusiast', 'Tokyo', 'Exploring diverse and delicious cuisines', 'Entry-level', 'Culinary Arts Diploma', 'Culinary Skills, Food Photography, Menu Planning'),
('environmentalist', 'hashed_password_10', 'environmentalist@email.com', 'Environmentalist', 'Amsterdam', 'Passionate about environmental conservation', 'Senior', 'Ph.D. in Environmental Science', 'Sustainability, Conservation, Climate Change'),
('robotics_expert', 'hashed_password_11', 'robotics.expert@email.com', 'Robotics Expert', 'Seoul', 'Leading advancements in robotics technology', 'Mid-level', 'MS in Robotics Engineering', 'Robotics Programming, Automation, AI'),
('business_consultant', 'hashed_password_12', 'business.consultant@email.com', 'Business Consultant', 'Singapore', 'Strategic consulting for global businesses', 'Senior', 'MBA in Business Administration', 'Strategic Planning, Market Analysis, Business Development'),

('space_enthusiast', 'hashed_password_13', 'space.enthusiast@email.com', 'Space Enthusiast', 'Houston', 'Passionate about exploring the cosmos', 'Entry-level', 'B.Sc. in Astrophysics', 'Space Exploration, Astronomy, Astrophotography'),
('travel_adventurer', 'hashed_password_14', 'travel.adventurer@email.com', 'Travel Adventurer', 'Sydney', 'Creating unforgettable travel experiences', 'Mid-level', 'Tourism and Travel Management', 'Destination Planning, Travel Photography, Cultural Awareness'),
('education_innovator', 'hashed_password_15', 'education.innovator@email.com', 'Education Innovator', 'Toronto', 'Empowering education through innovation', 'Senior', 'Ph.D. in Education', 'Educational Technology, Curriculum Development, Teacher Training'),
('sports_enthusiast', 'hashed_password_16', 'sports.enthusiast@email.com', 'Sports Enthusiast', 'Rio de Janeiro', 'Promoting sports excellence and fitness', 'Entry-level', 'Bachelor in Sports Science', 'Athlete Training, Sports Nutrition, Sports Psychology'),
('architectural_designer', 'hashed_password_17', 'architectural.designer@email.com', 'Architectural Designer', 'Dubai', 'Designing the future with architectural innovations', 'Mid-level', 'Master in Architecture', 'Architectural Design, 3D Modeling, Urban Planning'),
('marine_explorer', 'hashed_password_18', 'marine.explorer@email.com', 'Marine Explorer', 'Cape Town', 'Exploring the wonders of the ocean', 'Senior', 'Oceanography Degree', 'Marine Biology, Ocean Exploration, Conservation'),
('pharma_scientist', 'hashed_password_19', 'pharma.scientist@email.com', 'Pharma Scientist', 'Mumbai', 'Advancing healthcare through pharmaceuticals', 'Mid-level', 'Pharmaceutical Sciences', 'Drug Development, Pharmacology, Clinical Trials'),
('123', '123456', 'art.creator@email.com', 'Art Creator', 'Barcelona', 'Celebrating creativity through diverse artistic expressions', 'Entry-level', 'Fine Arts Degree', 'Painting, Sculpture, Digital Art');
INSERT INTO Jobs (EmployerID, Title, Description, Location, Type, Category, PostedDate) VALUES
(1, 'Senior Software Developer', 'Lead a team of developers to create cutting-edge software solutions.', 'New York', 'Full-time', 'Technology', '2024-01-06'),
(2, 'Financial Analyst', 'Conduct financial analysis and provide insights for strategic decision-making.', 'London', 'Full-time', 'Finance', '2024-01-06'),
(3, 'Machine Learning Engineer', 'Develop machine learning models for innovative tech applications.', 'San Francisco', 'Full-time', 'Technology', '2024-01-06'),
(4, 'Automotive Design Engineer', 'Lead the design team in creating the next generation of cars.', 'Detroit', 'Full-time', 'Automotive', '2024-01-06'),
(5, 'Renewable Energy Specialist', 'Research and implement sustainable energy solutions for the future.', 'Berlin', 'Full-time', 'Energy', '2024-01-06'),
(6, 'Fashion Stylist', 'Set trends and create unique fashion styles for various projects.', 'Paris', 'Part-time', 'Fashion', '2024-01-06'),
(7, 'Healthcare Researcher', 'Conduct research to advance medical knowledge and improve healthcare.', 'Boston', 'Full-time', 'Healthcare', '2024-01-06'),
(8, 'Multimedia Content Producer', 'Produce engaging multimedia content for diverse audiences.', 'Los Angeles', 'Full-time', 'Media', '2024-01-06'),
(9, 'Culinary Specialist', 'Explore and create diverse and delicious food experiences.', 'Tokyo', 'Part-time', 'Food', '2024-01-06'),
(10, 'Environmental Conservationist', 'Work towards a greener and healthier planet through conservation efforts.', 'Amsterdam', 'Full-time', 'Environment', '2024-01-06'),
(11, 'Robotics Programmer', 'Program and develop innovative robotic systems for various applications.', 'Seoul', 'Full-time', 'Technology', '2024-01-06'),
(12, 'Strategic Business Consultant', 'Provide strategic consulting services to global businesses.', 'Singapore', 'Full-time', 'Business', '2024-01-06'),
(13, 'Astrophysicist', 'Study the cosmos and contribute to advancements in astrophysics.', 'Houston', 'Full-time', 'Aerospace', '2024-01-06'),
(14, 'Travel Experience Curator', 'Curate and plan unforgettable travel experiences for clients.', 'Sydney', 'Part-time', 'Travel', '2024-01-06'),
(15, 'Educational Technology Innovator', 'Innovate and implement technology in education for better learning outcomes.', 'Toronto', 'Full-time', 'Education', '2024-01-06'),
(16, 'Sports Performance Coach', 'Train athletes and promote sports excellence and fitness.', 'Rio de Janeiro', 'Full-time', 'Sports', '2024-01-06'),
(17, 'Architectural Designer', 'Design innovative architectural structures and urban plans.', 'Dubai', 'Full-time', 'Architecture', '2024-01-06'),
(18, 'Marine Biologist', 'Explore and study marine life for conservation and scientific research.', 'Cape Town', 'Full-time', 'Marine', '2024-01-06'),

(19, 'Pharmaceutical Research Scientist', 'Contribute to pharmaceutical advancements through research and development.', 'Mumbai', 'Full-time', 'Pharmaceuticals', '2024-01-06'),
(20, 'Visual Artist', 'Express creativity through various artistic mediums and create unique artworks.', 'Barcelona', 'Part-time', 'Art', '2024-01-06');

INSERT INTO Applications (JobID, UserID, ApplicationDate, Status) VALUES
(1, 3, '2024-01-07', 'Pending'),
(2, 7, '2024-01-08', 'Pending'),
(3, 11, '2024-01-09', 'Pending'),
(4, 16, '2024-01-10', 'Pending'),
(5, 20, '2024-01-11', 'Pending'),
(6, 5, '2024-01-12', 'Pending'),
(7, 1, '2024-01-13', 'Pending'),
(8, 13, '2024-01-14', 'Pending'),
(9, 18, '2024-01-15', 'Pending'),
(10, 9, '2024-01-16', 'Pending'),
(11, 2, '2024-01-17', 'Pending'),
(12, 15, '2024-01-18', 'Pending'),
(13, 10, '2024-01-19', 'Pending'),
(14, 19, '2024-01-20', 'Pending'),
(15, 8, '2024-01-21', 'Pending'),
(16, 12, '2024-01-22', 'Pending'),
(17, 17, '2024-01-23', 'Pending'),
(18, 14, '2024-01-24', 'Pending'),
(19, 4, '2024-01-25', 'Pending'),
(20, 6, '2024-01-26', 'Pending');

INSERT INTO Certificates (CompanyID, Name, Description, Duration, SkillsAcquired) VALUES
(1, 'Java Developer Certification', 'Certification for Java programming proficiency.', '3 months', 'Java Programming, Software Development'),
(2, 'Finance Analytics Specialist', 'Specialized certification in financial analytics.', '2 months', 'Financial Analysis, Data Analytics, Excel'),
(3, 'Machine Learning Fundamentals', 'Fundamental concepts of machine learning.', '4 months', 'Machine Learning Basics, Data Science'),
(4, 'Automotive Design Mastery', 'Master the art of automotive design principles.', '6 months', 'Automotive Design, CAD Modeling'),
(5, 'Renewable Energy Technologies', 'Understanding and implementing renewable energy technologies.', '5 months', 'Renewable Energy, Sustainability'),
(6, 'Fashion Styling Techniques', 'Techniques and trends in fashion styling.', '3 months', 'Fashion Styling, Trend Analysis'),
(7, 'Healthcare Management Certification', 'Certification in healthcare management practices.', '4 months', 'Healthcare Management, Medical Administration'),
(8, 'Multimedia Content Creation', 'Creating engaging multimedia content.', '6 months', 'Video Production, Graphic Design'),
(9, 'Culinary Arts Mastery', 'Mastering the art and science of culinary arts.', '8 months', 'Culinary Techniques, Menu Planning'),
(10, 'Environmental Conservation Strategies', 'Strategies for effective environmental conservation.', '5 months', 'Environmental Conservation, Sustainability'),
(11, 'Advanced Robotics Programming', 'Advanced programming for robotics systems.', '6 months', 'Robotics Programming, AI'),
(12, 'Strategic Business Consulting', 'Strategies and tactics for strategic business consulting.', '4 months', 'Business Strategy, Consulting'),
(13, 'Astronomy and Astrophysics', 'Exploring the wonders of astronomy and astrophysics.', '7 months', 'Astronomy, Astrophysics'),

(14, 'Travel Planning and Management', 'Planning and managing travel experiences.', '3 months', 'Travel Planning, Tourism Management'),
(15, 'Educational Technology Innovations', 'Innovative technologies in education.', '5 months', 'Educational Technology, E-Learning'),
(16, 'Sports Performance Coaching', 'Coaching techniques for sports performance enhancement.', '6 months', 'Sports Coaching, Fitness Training'),
(17, 'Architectural Design Principles', 'Principles and practices of architectural design.', '8 months', 'Architectural Design, Urban Planning'),
(18, 'Marine Biology Fundamentals', 'Fundamental concepts of marine biology.', '4 months', 'Marine Biology, Oceanography'),
(19, 'Pharmaceutical Research and Development', 'Research and development in pharmaceuticals.', '7 months', 'Pharmaceutical Research, Drug Development'),
(20, 'Visual Arts Exploration', 'Exploring various forms of visual arts.', '6 months', 'Painting, Sculpture, Digital Art');

INSERT INTO UserCertificates (UserID, CertificateID, EnrollmentDate, CompletionDate, Status) VALUES
(3, 1, '2024-01-07', '2024-04-07', 'Completed'),
(7, 2, '2024-01-08', '2024-03-08', 'Completed'),
(11, 3, '2024-01-09', '2024-05-09', 'In Progress'),
(16, 4, '2024-01-10', NULL, 'Enrolled'),
(20, 5, '2024-01-11', NULL, 'Enrolled'),
(5, 6, '2024-01-12', '2024-06-12', 'Completed'),
(1, 7, '2024-01-13', '2024-05-13', 'In Progress'),
(13, 8, '2024-01-14', '2024-07-14', 'Completed'),
(18, 9, '2024-01-15', NULL, 'Enrolled'),
(9, 10, '2024-01-16', '2024-09-16', 'Completed'),
(2, 11, '2024-01-17', '2024-04-17', 'Completed'),
(15, 12, '2024-01-18', '2024-05-18', 'In Progress'),
(10, 13, '2024-01-19', '2024-08-19', 'Completed'),
(19, 14, '2024-01-20', NULL, 'Enrolled'),
(8, 15, '2024-01-21', '2024-06-21', 'Completed'),
(12, 16, '2024-01-22', '2024-07-22', 'Completed'),
(17, 17, '2024-01-23', NULL, 'Enrolled'),
(14, 18, '2024-01-24', '2024-09-24', 'Completed'),
(4, 19, '2024-01-25', '2024-08-25', 'Completed'),
(6, 20, '2024-01-26', NULL, 'Enrolled');

- ## "Tablolarınızda primary key ve foreign key kısıtlarını kullanmalısınız." için;

CREATE TABLE Companies (
    CompanyID SERIAL NOT NULL PRIMARY KEY,
///
///);

CREATE TABLE Users (
    UserID SERIAL NOT NULL PRIMARY KEY,
///

```
///);

CREATE TABLE Jobs (
   JobID SERIAL PRIMARY KEY,
///
///);

CREATE TABLE Applications (
///
   PRIMARY KEY(JobID,UserID),
///);

CREATE TABLE Certificates (
   CertificateID SERIAL PRIMARY KEY,
///
///);

CREATE TABLE UserCertificates (
///
   PRIMARY KEY (UserID,CertificateID),
///);
```

- ## "En az bir tabloda silme kısıtı ve sayı kısıtı olmalıdır." için;

```
ALTER TABLE Users ADD CONSTRAINT password_hash_size_check CHECK (LENGTH(PasswordHash)
>= 6);

CREATE TABLE Jobs (
///
///
   FOREIGN KEY (EmployerID) REFERENCES Companies(CompanyID) ON UPDATE CASCADE ON
DELETE CASCADE
);

CREATE TABLE Applications (
///
///
   FOREIGN KEY (JobID) REFERENCES Jobs(JobID) ON UPDATE CASCADE ON DELETE CASCADE,
   FOREIGN KEY (UserID) REFERENCES Users(UserID) ON UPDATE CASCADE ON DELETE
CASCADE
);
CREATE TABLE Certificates (
///
///
   FOREIGN KEY (CompanyID) REFERENCES Companies(CompanyID) ON UPDATE CASCADE ON
DELETE SET DEFAULT
);


CREATE TABLE UserCertificates (
///
///
   FOREIGN KEY (UserID) REFERENCES Users(UserID) ON UPDATE CASCADE ON DELETE
CASCADE,
   FOREIGN KEY (CertificateID) REFERENCES Certificates(CertificateID) ON UPDATE CASCADE ON
DELETE SET DEFAULT
);
```

- **"Arayüzden en az birer tane insert, update ve delete işlemi gerçekleştirilebilmelidir." için;**

String sql = "INSERT INTO Certificates (CompanyID, Name, Description) VALUES ((SELECT CompanyID FROM Companies WHERE Name = ?), ?, ?)";

String sql = "UPDATE Applications SET Status = ? WHERE ApplicationID = ?";

String sql = "UPDATE UserCertificates SET Status = ? WHERE UserCertificateID = ?";

String sql = "INSERT INTO Jobs (EmployerID, Title, Description, Location, Type, Category, PostedDate) VALUES ((SELECT CompanyID FROM Companies WHERE Name = ?), ?, ?, ?, ?, ?, ?)";

String sql = "INSERT INTO Users (Username, Email, FullName, Location, ProfileSummary, ExperienceLevel, Education, Skills, PasswordHash) VALUES (?, ?, ?, ?, ?, ?, ?, ?, ?)";

String sql = "INSERT INTO Applications (JobID, UserID, ApplicationDate, Status) VALUES (?, (SELECT UserID FROM Users WHERE Username = ?), CURRENT_DATE, 'Pending')";

String sql = "UPDATE Users SET FullName = ?, Email = ?, Location = ?, ExperienceLevel = ?, Education = ?, Skills = ? WHERE Username = ?";

String sql = "INSERT INTO UserCertificates (UserID, CertificateID, EnrollmentDate, Status) VALUES ((SELECT UserID FROM Users WHERE Username = ?), ?, CURRENT_DATE, 'Enrolled')";

String sql = "DELETE FROM Applications WHERE ApplicationID = ?";

- **"Arayüzden girilecek bir değere göre ekrana sonuçların listelendiği bir sorgu yazmalısınız." için;**

String sql = "SELECT Name FROM Companies WHERE Name = ?";

String sql = "SELECT * FROM Jobs WHERE EmployerID IN (SELECT CompanyID FROM Companies WHERE Name = ?)";

String sql = "SELECT * FROM Certificates WHERE CompanyID IN (SELECT CompanyID FROM Companies WHERE Name = ?)";

String sql =
"SELECT a.ApplicationID, a.JobID, a.UserID, a.Status, u.FullName, j.Title
FROM Applications a
JOIN Jobs j ON a.JobID = j.JobID JOIN Users u ON a.UserID = u.UserID
WHERE j.EmployerID IN (SELECT CompanyID FROM Companies
                                                        WHERE Name = ?)";

String countSql = "SELECT COUNT(*) AS TotalApplications
FROM UserCertificates uc
JOIN Certificates c ON uc.CertificateID = c.CertificateID
JOIN Users u ON uc.UserID = u.UserID
WHERE c.CompanyID = (SELECT CompanyID FROM Companies WHERE Name = ?)";

String applicationsSql =
"SELECT uc.UserCertificateID, u.FullName, c.Name, uc.Status
FROM UserCertificates uc
JOIN Certificates c ON uc.CertificateID = c.CertificateID
JOIN Users u ON uc.UserID = u.UserID

WHERE c.CompanyID = (SELECT CompanyID FROM Companies WHERE Name = ?)";

String sql = "SELECT Username FROM Users WHERE (Username = ? OR Email = ?) AND PasswordHash = ?";

String sql = "SELECT FullName, Email, Location, ExperienceLevel, Education, Skills FROM Users WHERE Username = ?";

String sql = "SELECT CertificateID, Name, Description FROM Certificates
WHERE CertificateID NOT IN
(SELECT CertificateID FROM UserCertificates WHERE UserID = (SELECT UserID FROM Users WHERE Username = ?))";

String sql = "SELECT c.Name, uc.EnrollmentDate, uc.Status FROM UserCertificates uc JOIN Certificates c ON uc.CertificateID = c.CertificateID WHERE uc.UserID = (SELECT UserID FROM Users WHERE Username = ?)";

String sql = "SELECT a.ApplicationID, j.Title, j.Description, j.Location, j.Type, j.Category, j.PostedDate, a.Status
FROM Jobs j
JOIN Applications a ON j.JobID = a.JobID
JOIN Users u ON a.UserID = u.UserID
WHERE u.Username = ?";

- **"Arayüzden çağrılan sorgulardan en az biri "view" olarak tanımlanmış olmalıdır." için;**

String sql = "SELECT * FROM allJobAds";

CREATE VIEW allJobAds
AS
SELECT JobID, Title, Description, Location, Type, Category, PostedDate
FROM Jobs;

- **"En az bir adet "sequence" oluşturmalı ve arayüzden yapılacak insert sırasında ilgili sütundaki değerlerin otomatik olarak atanmasını sağlamalısınız." için;**

CREATE SEQUENCE Applications_id_seq START 1;
ALTER TABLE applications
ALTER COLUMN ApplicationID SET DEFAULT nextval('Applications_id_seq');

String sql = "INSERT INTO Applications (JobID, UserID, ApplicationDate, Status) VALUES (?, (SELECT UserID FROM Users WHERE Username = ?), CURRENT_DATE, 'Pending')";

- **"Arayüzden çağrılan sorgulardan en az birinde union veya intersect veya except kullanmış olmalısınız." için;**

- **"Sorgularınızın en az biri aggregate fonksiyonlar içermeli, having ifadesi kullanılmalıdır." için;**

```
String countSql = "SELECT COUNT(*) AS TotalApplications
FROM UserCertificates uc
JOIN Certificates c ON uc.CertificateID = c.CertificateID
JOIN Users u ON uc.UserID = u.UserID
WHERE c.CompanyID = (SELECT CompanyID FROM Companies WHERE Name = ?) HAVING COUNT(*)
> 0";
```

- **"Arayüzden girilen değerleri parametre olarak alıp ekrana sonuç döndüren 3 farklı SQL fonksiyonu tanımlamış olmalısınız. Bu fonksiyonların en az birinde "record" ve "cursor" tanımı-kullanımı olmalıdır." için;**

```
Java -> String sql = "SELECT * FROM getJobsByCompany(?)";
CREATE OR REPLACE FUNCTION getJobsByCompany(companyName VARCHAR)
RETURNS TABLE (
    jobID INT,
    title VARCHAR(255),
    description TEXT,
    location VARCHAR(255),
    type VARCHAR(100),
    category VARCHAR(100),
    postedDate DATE
)
AS $$
BEGIN
    RETURN QUERY
    SELECT j.JobID, j.Title, j.Description, j.Location, j.Type, j.Category, j.PostedDate
    FROM
        Jobs j
    JOIN
        Companies c ON j.EmployerID = c.CompanyID
    WHERE
        c.Name = companyName;
END;
$$ LANGUAGE plpgsql;


Java - >sql = "SELECT * FROM get_jobs_by_location_and_industry(?, ?)";
CREATE OR REPLACE FUNCTION get_jobs_by_location_and_industry(input_location VARCHAR(255),
input_industry VARCHAR(255))
RETURNS TABLE (
    JobID INT,
    CompanyName VARCHAR(255),
    Title VARCHAR(255),
    JobDescription TEXT,
    JobLocation VARCHAR(255),
    JobType VARCHAR(100),
    JobCategory VARCHAR(100),
    PostedDate DATE
) AS $$
DECLARE
```

```plpgsql
    job_record RECORD;
    job_cursor CURSOR FOR
        SELECT j.JobID, c.Name, j.Title, j.Description, j.Location, j.Type, j.Category, j.PostedDate
        FROM
            Jobs j
        JOIN
            Companies c ON j.EmployerID = c.CompanyID
        WHERE
            j.Location = input_location AND c.Industry = input_industry;
BEGIN
    OPEN job_cursor;
    LOOP
        FETCH job_cursor INTO job_record;
        EXIT WHEN NOT FOUND;
        JobID := job_record.JobID;
        CompanyName := job_record.Name;
        Title := job_record.Title;
        JobDescription := job_record.Description;
        JobLocation := job_record.Location;
        JobType := job_record.Type;
        JobCategory := job_record.Category;
        PostedDate := job_record.PostedDate;
        RETURN NEXT;
    END LOOP;
    CLOSE job_cursor;
END;
$$ LANGUAGE plpgsql;

Java - > String sql = "SELECT * FROM get_user_applications(?)";
CREATE OR REPLACE FUNCTION get_user_applications(input_username VARCHAR(255))
RETURNS TABLE (
    ApplicationID INT,
    Title VARCHAR(255),
    Description TEXT,
    Location VARCHAR(255),
    Type VARCHAR(100),
    Category VARCHAR(100),
    PostedDate DATE,
    Status VARCHAR(100)
) AS $$
BEGIN
    RETURN QUERY
    SELECT a.ApplicationID, j.Title, j.Description, j.Location, j.Type, j.Category, j.PostedDate, a.Status
    FROM
        Jobs j
    JOIN
        Applications a ON j.JobID = a.JobID
    JOIN
        Users u ON a.UserID = u.UserID
    WHERE
        u.Username = input_username;
END;
$$ LANGUAGE plpgsql;
```

- **"2 adet trigger tanımlamalı ve arayüzden girilecek değerlerle tetiklemelisiniz. Trigger'ın çalıştığına dair arayüze bilgilendirme mesajı döndürülmelidir." için;**

```
CREATE OR REPLACE FUNCTION check_password_length()
RETURNS TRIGGER AS $$
BEGIN
   IF LENGTH(NEW.PasswordHash) < 6 THEN
      RAISE EXCEPTION 'Password en az 6 karakter olmalidir';
   END IF;
   RETURN NEW;
END;
$$ LANGUAGE plpgsql;

CREATE TRIGGER check_password_length_trigger
BEFORE INSERT ON Users
FOR EACH ROW EXECUTE FUNCTION check_password_length();
String errorMessage = ex.getMessage();// PostgreSQL'den gelen hatayı kontrol et

String specialErrorMessage = "Password en az 6 karakter olmalidir";// Trigger'dan gelen özel hata mesajını
kontrol et
if (errorMessage.contains(specialErrorMessage)) {// Ozel durum, ozel mesaji goster
            JOptionPane.showMessageDialog(frame, "Kayıt sırasında hata oluştu: " + specialErrorMessage);
}
else {// Diger durumlar icin genel hata mesaji goster
            JOptionPane.showMessageDialog(frame, "Kayıt sırasında hata oluştu: " + errorMessage);
          }

CREATE OR REPLACE FUNCTION check_company_exists()
RETURNS TRIGGER AS $$
BEGIN
 IF NOT EXISTS (SELECT 1 FROM Companies WHERE CompanyID = NEW.EmployerID) THEN
   RAISE EXCEPTION 'CompanyID does not exist';
 END IF;
 RETURN NEW;
END;
$$ LANGUAGE plpgsql;

CREATE TRIGGER check_company_before_insert
BEFORE INSERT ON Jobs
FOR EACH ROW EXECUTE FUNCTION check_company_exists();

CREATE OR REPLACE FUNCTION check_user_job_exists()
RETURNS TRIGGER AS $$
BEGIN
 -- Check if UserID exists in Users table
 IF NOT EXISTS (SELECT 1 FROM Users WHERE UserID = NEW.UserID) THEN
   RAISE EXCEPTION 'UserID does not exist';
 END IF;
 -- Check if JobID exists in Jobs table
 IF NOT EXISTS (SELECT 1 FROM Jobs WHERE JobID = NEW.JobID) THEN
   RAISE EXCEPTION 'JobID does not exist';
 END IF;
 RETURN NEW;
END;
$$ LANGUAGE plpgsql;

CREATE TRIGGER check_user_job_before_insert
BEFORE INSERT ON Applications
```

```sql
FOR EACH ROW EXECUTE FUNCTION check_user_job_exists();

CREATE OR REPLACE FUNCTION check_user_certificate_exists()
RETURNS TRIGGER AS $$
BEGIN
  -- Check if UserID exists in Users table
  IF NOT EXISTS (SELECT 1 FROM Users WHERE UserID = NEW.UserID) THEN
    RAISE EXCEPTION 'UserID does not exist';
  END IF;
  -- Check if CertificateID exists in Certificates table
  IF NOT EXISTS (SELECT 1 FROM Certificates WHERE CertificateID = NEW.CertificateID) THEN
    RAISE EXCEPTION 'CertificateID does not exist';
  END IF;
  RETURN NEW;
END;
$$ LANGUAGE plpgsql;

CREATE TRIGGER check_user_certificate_before_insert
BEFORE INSERT ON UserCertificates
FOR EACH ROW EXECUTE FUNCTION check_user_certificate_exists();


CREATE OR REPLACE FUNCTION trig_basvuru()
RETURNS TRIGGER AS $$
DECLARE
    my_row Applications%ROWTYPE;
BEGIN
    FOR my_row IN SELECT * FROM Applications WHERE jobID = NEW.jobID AND userID = NEW.userID
LOOP
        RAISE EXCEPTION 'Bu ise daha once basvurdunuz';
        RETURN NULL;
    END LOOP;

    RETURN NEW;
END;
$$ LANGUAGE 'plpgsql';

CREATE TRIGGER trigger_basvuru
BEFORE INSERT ON Applications
FOR EACH ROW EXECUTE PROCEDURE trig_basvuru();


ex.printStackTrace();
String errorMessage = ex.getMessage();

// Özel durumu kontrol et
String specialErrorMessage = "Bu ise daha once basvurdunuz";
if (errorMessage.contains(specialErrorMessage)) {
        // Özel durum, özel mesaj
        JOptionPane.showMessageDialog(frame, "Başvuru sırasında hata oluştu: " + specialErrorMessage);
}
else {
        // Diğer durumlar için genel hata mesajı
        JOptionPane.showMessageDialog(frame, "Başvuru sırasında hata oluştu: " + errorMessage);
    }
```