

Team Members :

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Scenario :

The Examination System for the Information Technology Institute (ITI) is a comprehensive solution designed to manage and streamline the examination process for the institute. The system is specifically developed to satisfy the needs of the ITI, which consists of multiple branches, each with a unique ID, city, manager_id, date_of_opening.

Each branch hosts number of tracks. Each track has a unique ID, name, type(3 or 9). It is important to note that a track must exist in one or more branches, and a branch may contain one or more tracks.

To apply to any track, applicant has to submit his info which consist of name, military status, martial status, year of graduation, university, faculty, and grade. Each applicant is identified by applicant_id and intake number.

Application progress is tracked by English score, IQ score, technical and soft skills interviews score, and final interview score.

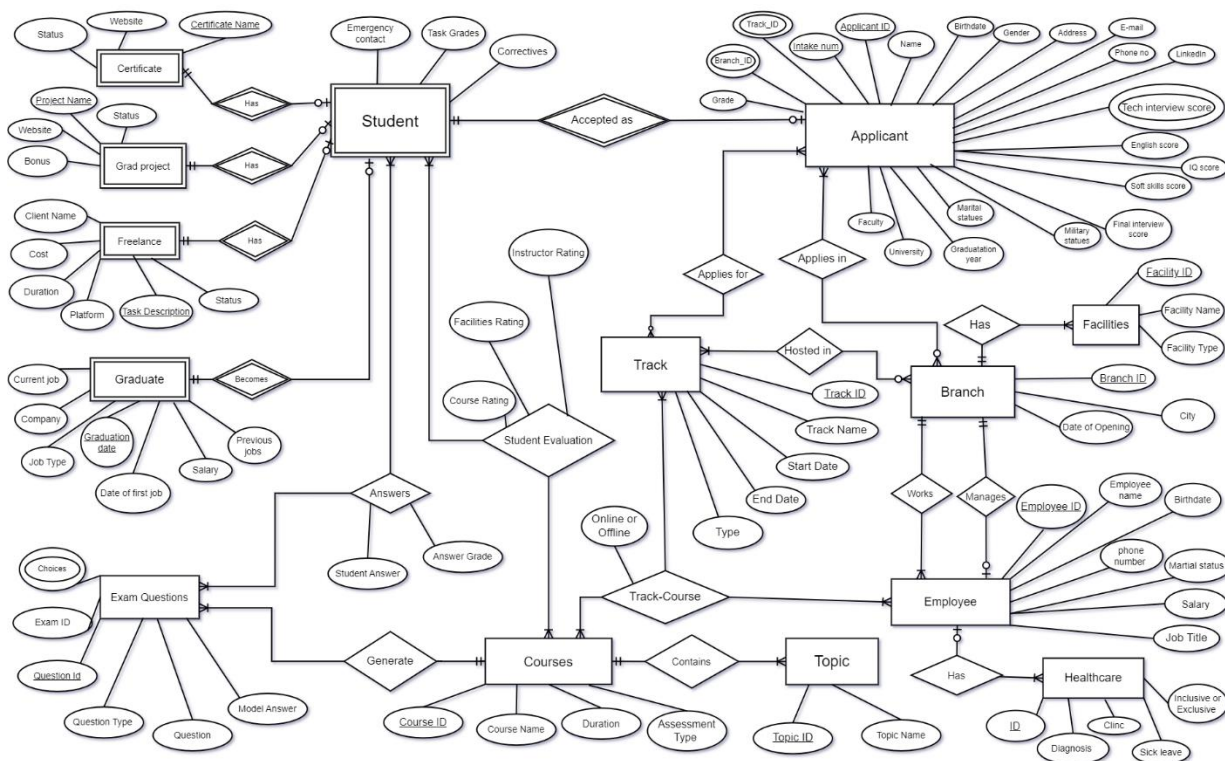
Accepted applicants become students in one of the tracks they chose according to the previous criteria. Students are identified by unique ids dependent on applicant id and each student has number of KPIs which are one freelance job, one certificate, two courses, labs evaluation and attendance. Each track is identified by a unique id, name, start date, end date, type, and super visor. Each track contains number of courses identified by ids and each has a duration and assessment type and an instructor, and each course consists of multiple topics.

At the end of a course, enrolled students will take an exam. The exam consists of a unique ID, number of multiple-choice questions (MCQ), and number of true/false questions. The exam is generated by selecting random questions, group of answers (A,B, C, D), and the model answer. It is important to note that for each course, there is a related question table that contains many questions, and each question belongs to only one course. Each student's answers and grades must be recorded after taking the generated exam.

Each branch has a number of facilities and employees. Each facility is identified by a unique id, name, and type. And employees are identified by id, name, dob, phone number, martial status, salary, job_id and job_title.

Each employee has health insurance that covers clinics and has information about diagnosis and sick leave.

ERD



Mapping

- 1- applicants (applicant_id, student_name, gender, birth_date, address, email, phone_number, linkedin_account, military_status, martial_status, faculty, university, graduation_year, grade)
- 2- applicant_intake(applicant_id, intake number, english_score, iq_score, soft_skills_interview_score, final_interview_score)
- 3- applicant_track_branch_techInterview (applicant_id FK, intake number FK, track_id FK, branch_id FK, tech_interview_score)

- 4- exam_questions (question_id, exam_id, question, type, model_answer, course_id FK)
- 5- question_choices (question_id FK, choice)
- 6- courses (course_id, course_name, duration, assessment_type)
- 7- topics (topic_id, topic_name, course_id FK)
- 8- employees (employee_id, employee_name, date_of_birth, phone_number, martial_status, salary, job_title, branch_id FK)
- 9- healthcare (visit_id, diagnosis, clinic, inclusive/exclusive, sick_leave, employee_id FK)
- 10- branches (branch_id, city, opening_date, manager_id FK)
- 11- facilities (facility_id, facility_name, facility_type, branch_id FK)
- 12- tracks (track_id, track_name, start_date, end_date, type, supervisor_id FK)
- 13- students (applicant_id FK, intake_number FK, emergency_contact, tasks_grade, correctives)
- 14- graduates (applicant_id FK, intake_number FK, graduation_date FK, current_job, company, job_type, previous_job, employment_date, salary)
- 15- graduation projects (student_id FK, intake_number FK, project_name, bonus, project_grade, status)
- 16- certificates (student_id FK, intake_number FK, certificate_name, platform, status)
- 17- freelance (student_id FK, intake_number FK, status, task_description, platform, duration, cost, client_name)
- 18- Applicant_track (Applicant_id FK, track_id FK)
- 19- Applicant_branch (Applicant_id FK, branch_id FK)
- 20- track_branch (track_id FK, branch_id FK)
- 21- student_answers (student_id FK, intake_number FK, question_id FK, student_answer, answer_grade)
- 22- student_evaluation (student_id FK, intake_number FK, course_id FK, course_rating, facility_rating, instructor_rating)
- 23- track_course_instructor (track_id FK, course_id FK, instructor_id FK, online_or_offline)

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Data Dictionary :

table	description
applicants	A table that stores personal information about individuals who have applied for a program.

column	description	data type
applicant_id	The national identification number of the applicant. A unique identifier for each applicant in the database.	numeric(18,0)
student_name	The full name of the applicant.	nvarchar(50)
gender	The gender of the applicant.	nvarchar(10)
birth_date	The date of birth of the applicant.	date
address	The email address of the applicant.	nvarchar(50)
email	The email address of the applicant.	nvarchar(50)
phone_number	The phone number of the applicant.	nvarchar(15)
linkedin_account	The LinkedIn profile of the applicant (if exists).	nvarchar(100)
military_status	The military status of the applicant (e.g. completed, postponed, exempted).	nvarchar(20)
marital_status	The marital status of the applicant.	nvarchar(30)
faculty	The faculty that the applicant graduated from.	nvarchar(100)
university	The university that the applicant graduated from.	nvarchar(50)
graduation_year	The year that the applicant graduated or expects to graduate from university.	int
grade	The grade of the applicant (e.g. excellent, very good, good).	nvarchar(10)

table	description
applicant_intake	A table that stores information about an applicant's performance during the application cycle.

column	description	data type
applicant_id	A foreign key that references the "applicant_id" column in the "applicants" table.	numeric(18,0)
intake_number	A number that identifies the intake the applicant applied in.	int
english_score	The applicant's score on an English language proficiency test.	int
iq_score	The applicant's score on an IQ test.	int
soft_skills_interview_score	The applicant's score on an interview focused on evaluating their soft skills.	int
final_interview_score	The applicant's score on the final interview in the application process.	int

table	description
applicant_track_branch_techInterview	A table that stores information about an applicant's performance in a technical interview for a specific career track or location.

column	description	data type
applicant_id	A foreign key that references the "applicant_id" column in the "applicants" table.	numeric(18,0)
intake number	A number that identifies the intake the applicant applied in.	int
track_id	A foreign key that references the "track_id" column in a tracks table that stores information about different career tracks.	int
branch_id	A foreign key that references the "branch_id" column in a branches table that stores information about different branches or locations of the organization.	int
tech_interview_score	The applicant's score on a technical interview.	int

table	description
description of table	A table that stores information about questions that appear on exams of different courses.

column	description	data type
question_id	A unique identifier for each question in the database.	int
exam_id	the number of exam in which a question generated.	int
question	The text of the question itself.	text
type	The type of the question, such as multiple-choice, or	nvarc

	true/false.	har(30)
model_answer	The model answer or expected answer for the question.	text
course_id	A foreign key that references the "course_id" column in courses table that stores information about each course.	int

table	description	
question_choices	A table that stores information about the answer choices for questions on exams.	

column	description		data type
question_id	A foreign key that references the "question_id" column in the "exam_questions" table.		int
choice	The letter of an answer choice for the question on an exam. (e.g. a,b,c, or d).		char(1)
choice_value	The text of an answer choice for a question on an exam.		nvarchar(25)

table	description	
courses	A table that stores information about courses offered by ITI.	

column	description		data type
course_id	A unique identifier for each course in the database.		int
course_name	The name or title of the course.		nvarchar(70)
duration	The length of the course, measured in days.		int
assessment_type	The type of assessment used to evaluate student performance in the course. (e.g. exam, tasks, or attendance).		nvarchar(30)

table	description	
topics	A table that stores information about the topics covered in each course.	

column	description		data type
topic_id	A unique identifier for each topic in the database.		int
topic_name	The name or title of the topic.		nvarchar(100)

course_id	A foreign key that references the "course_id" column in the "courses" table.	int
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table	description
employees	A table that stores information about employees in the organization.

column	description	data type
employee_id	A table that stores information about employees in an organization.	numeric(18,0)
employee_name	The name of the employee.	nvarchar(50)
date_of_birth	The date of birth of the employee.	date
phone_number	The phone number of the employee.	nvarchar(15)
marital_status	The marital status of the employee, such as single, married, or divorced.	nvarchar(10)
salary	The salary or compensation of the employee.	int
job_title	The job title or position of the employee.	nvarchar(50)
branch_id	A foreign key that references the "branch_id" column in a branches table that stores information about different branches or locations of the organization.	int

table	description
healthcare	A table that stores information about employee visits to healthcare clinics.

column	description	data type
visit_id	A unique identifier for each visit in the database.	int
diagnosis	The diagnosis or medical condition for which the employee sought treatment.	nvarchar(100)
clinic	The name or identifier of the healthcare clinic or facility where the employee made the visit.	nvarchar(100)
inclusive/exclusive	A flag indicating whether the visit was inclusive or exclusive of the employee's insurance plan.	nvarchar(1

		0)
sick_leave	the number of days of sick leave recommended or taken as a result of the visit.	int
employee_id	A foreign key that references the "employee_id" column in the "employees" table.	numeric(18,0)

table	description
branches	A table that stores information about the different branches or locations of the organization.

column	description	data type
branch_id	A unique identifier for each branch in the database.	int
city	The city where the branch is located.	nvarchar(50)
opening_date	The date when the branch was opened.	date
manager_id	A foreign key that references the "employee_id" column in the "employees" table. This column indicates the manager of the branch.	numeric(18,0)

table	description
facilities	A table that stores information about the facilities or amenities available at each branch or location of an organization.

column	description	data type
facility_id	A unique identifier for each facility in the database.	int
facility_name	The name or identifier of the facility.	nvarchar(30)
facility_type	The type of facility, such as hall, lab, services, etc.	nvarchar(30)
branch_id	A foreign key that references the "branch_id" column in the "branches" table.	int

table	description
tracks	A table that stores information about tracks or projects in an organization.

column	description	data type
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track_id	A unique identifier for each track in the database.	int
track_name	The name or title of the track.	nvarchar(50)
start_date	The start date of the track.	date
end_date	The end date of the track.	date
type	The type of track 3, or 9 months.	nvarchar(50)
supervisor_id	A foreign key that references the "employee_id" column in the "employees" table.	numeric(18,0)

table	description
students	A table that stores information about students enrolled in different intaks.

column	description	data type
student_id	foreign key that references the "applicant_id" column in the "applicants" table.	numeric(18,0)
intake_number	A number that identifies the intake the applicant applied in.	int
emergency_contact	The phone number of the student's emergency contact.	nvarchar(15)
tasks_grade	The grades or scores that the student received for completed tasks and assignments.	int
correctives	count of absence and lateness times.	int

table	description
graduates	A table that stores information about the employment status of students after they graduate from an educational program or training track.

column	description	data type
applicant_id	A foreign key that references the "applicant_id" column in the "applicants" table.	numeric(18,0)
intake_number	A number that identifies the intake the applicant applied in.	int
graduation_date	the date when the student graduated.	date
current_job	The current job or position of the graduate.	nvarchar(50)
company	The name of the company where the graduate is employed.	nvarchar

		har(50)
job_type	The type of job or position, such as full-time, part-time.	nvarchar(30)
previous_job	The previous job or position held by the graduate, if applicable.	nvarchar(30)
employment_date	The date when the graduate was employed in their current job.	date
salary	The salary of the graduate in their current job.	int

table	description
graduation projects	A table that stores information about the graduation projects completed by students in an educational program or training track.

column	description	data type
student_id	A foreign key that references the "student_id" column in the "students" table.	numeric(18,0)
intake_number	A number that identifies the intake the applicant applied in.	int
project_name	The name or title of the graduation project completed by the student.	nvarchar(50)
bonus	A flag that indicates whether the student made the bonus part of the project or not. A value of 1 means the student made the bonus part, unlike 0.	bit
project_grade	The grade or score received by the student for the graduation project.	int
status	The status of the graduation project, which can be either "in progress" or "finished".	nvarchar(30)

table	description
certificates	A table that stores information about the certificates earned by students in an educational program or training track.

column	description	data type
student_id	A foreign key that references the "student_id" column in the "students" table.	numeric(18,0)
intake_number	The intake number of the student who earned the certificate.	int

certificate_name	The name or title of the certificate earned by the student.	nvarchar(100)
platform	The platform or provider where the certificate was earned, such as Coursera, edX, or Udemy.	nvarchar(50)
status	The status of the certificate, which can be either "in progress" or "finished".	nvarchar(15)

table	description
freelance	A table that stores information about the freelancing jobs required by each students

column	description	data type
student_id	A foreign key that references the "student_id" column in the "students" table.	numeric(18,0)
intake_number	A number that identifies the intake the applicant applied in.	int
status	The status of the freelance job, such as "completed", "in progress"	nvarchar(15)
task_description	A brief description of the task or project completed by the student	nvarchar(90)
platform	The platform where the freelance job was found or posted, such as Upwork, Freelancer, or Fiverr.	nvarchar(30)
duration	The duration of the freelance job in days	int
cost	The payment or compensation received by the student for completing the freelance job.	int
client_name	The name of the client who hired the student for the freelance job.	nvarchar(50)

table	description
Applicant_track	A table that stores information about the tracks or programs that applicants have applied to.

column	description	data type
track_id	A foreign key that references the "track_id" column in the "tracks" table.	int
Applicant_id	A foreign key that references the "applicant_id" column in the	num

	"applicants" table.	eric(18,0)
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table	description
Applicant_branch	A table that stores information about the branches or locations that applicants have applied to.

column	description	data type
Applicant_id	A foreign key that references the "applicant_id" column in the "applicants" table.	numeric(18,0)
branch_id	A foreign key that references the "branch_id" column in the "branches" table.	int

table	description
track_branch	A table that stores information about the branches or locations where a track or program is offered.

column	description	data type
track_id	A foreign key that references the "track_id" column in the "tracks" table.	int
branch_id	A foreign key that references the "branch_id" column in the "branches" table.	int

table	description
student_answers	A table that stores information about the answers submitted by students for questions in an educational program or assessment.

column	description	data type
student_id	A foreign key that references the "student_id" column in the "students" table.	numeric(18,0)
question_id	A foreign key that references the "question_id" column in the "questions" table.	int
student_answer	The answer submitted by the student for the question.	text
answer_grade	The grade or score received by the student for the answer submitted.	int

table	description
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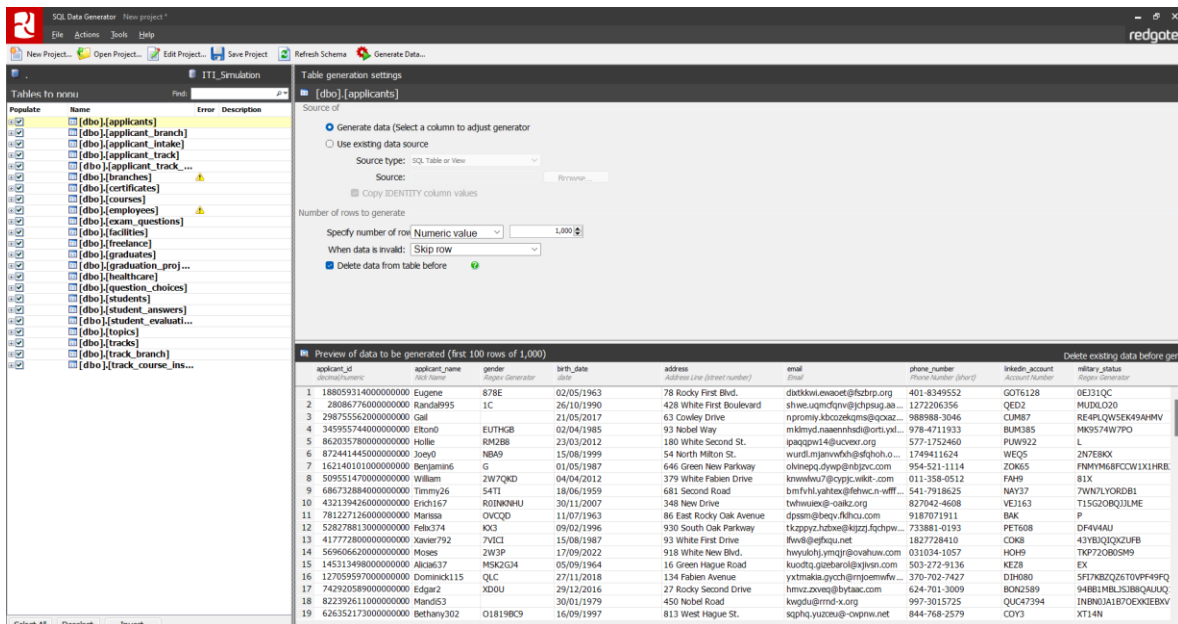
student_evaluation	A table that stores information about the evaluations or feedback provided by students for courses in an educational program.
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column	description	data type
student_id	A foreign key that references the "student_id" column in the "students" table.	numeric(18,0)
course_id	A foreign key that references the "course_id" column in the "courses" table.	int
course_rating	The rating provided by the student for the course.	int
facility_rating	The rating provided by the student for the facilities related to the course.	int
instructor_rating	The rating provided by the student for the instructor or instructors of the course.	int

table	description
track_course_instructor	A table that stores information about the courses and instructors assigned to a track or program.

column	description	data type
track_id	A foreign key that references the "track_id" column in the "tracks" table.	int
course_id	A foreign key that references the "course_id" column in the "courses" table.	int
instructor_id	A foreign key that references the "instructor_id" column in the "instructors" table.	numeric(18,0)
online_or_offline	A column that indicates whether the course is offered online or offline.	nvarchar(10)

Redgate data generator




Stored Procedures

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- + **dbo.check_applicant_scores**
- + **dbo.delete_from_table**
- + **dbo.get_applicant_scores**
- + **dbo.get_branches**
- + **dbo.get_course_topics**
- + **dbo.get_courses**
- + **dbo.get_employees**
- + **dbo.get_evaluation**
- + **dbo.get_graduates**
- + **dbo.get_instructor_courses**
- + **dbo.get_intake_applicants**
- + **dbo.get_jobs**
- + **dbo.get_ques_choice**
- + **dbo.Get_specific_course**
- + **dbo.get_specific_graduate**
- + **dbo.get_specific_instructor**
- + **dbo.get_specific_track**
- + **dbo.get_stud_answers**
- + **dbo.get_stud_grades**
- + **dbo.get_studs_by_track**
- + **dbo.get_track_branch**
- + **dbo.get_tracks**
- + **dbo.insert_branch**
- + **dbo.insert_certificate**
- + **dbo.insert_freelance**
- + **dbo.insert_graduate**
- + **dbo.insert_track**
- + **dbo.update_hiring**
- + **dbo.update_military_status**
- + **dbo.update_salary**
- + **dbo.update_table**

Reports


1 of 2 ? 100% Find | Next

 Report 1

students in track number: 1

track id	intake number	student id	student name	gender	birth date	address	email	phone number
1	41	20004474844955	Nadia Omar	Female	6/12/1998 12:00:00 AM	12 St. in Al-Mamurah, Alexandria	ycshg.xneladn@eatdc.net	01236996585
1	41	20071255665701	Atef Adly	Male	1/24/1998 12:00:00 AM	11 St. in Al-Wildiyyah, Assiut	axvw@majdqe.org	01678116966
1	41	20142094617138	Hend Malek	Female	5/24/1997 12:00:00 AM	9 St. in Heliopolis, Cairo	xchnn.amccrv@ocgyn.oa--hi.net	01241384629
1	41	20555959530004	Alaa Gamel	Female	5/10/1998 12:00:00 AM	4 St. in El-Obour, Cairo	nvclcu6@xnom.kdyvq-.org	01531900223
1	41	20654535214260	Hend Amr	Female	9/16/2000 12:00:00 AM	28 St. in El-Matrya, Cairo	xbwjolw79@xhtqib.net	01358481590

1 of 1 100% Find | Next


 Report 2

grades of student no: 20062573011238

course name	grade
DataWareHouse	66.67%
Introduction to Transformation and Data Modelling Power BI	86.67%
microsoft SQL Server Business Intelligence	73.33%
Object oriented programming concepts	80%
OS Fundamentals workshop	60%

DESKTOP-DSHU2KG\DELL 6/13/2023 10:18:06 AM

1 of 1 100% Find | Next


 Report 3

courses of instructor no: 21761868315474

course name	number of students
Communication skills	59
Flutter development	53
Object oriented programming concepts	52

DESKTOP-DSHU2KG 6/13/2023 10:18:17 AM

1 of 1 100% Find | Next

 Report 4

topics in course: Object oriented programming

topic name
Intro to OOP
Class
Object

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Error List

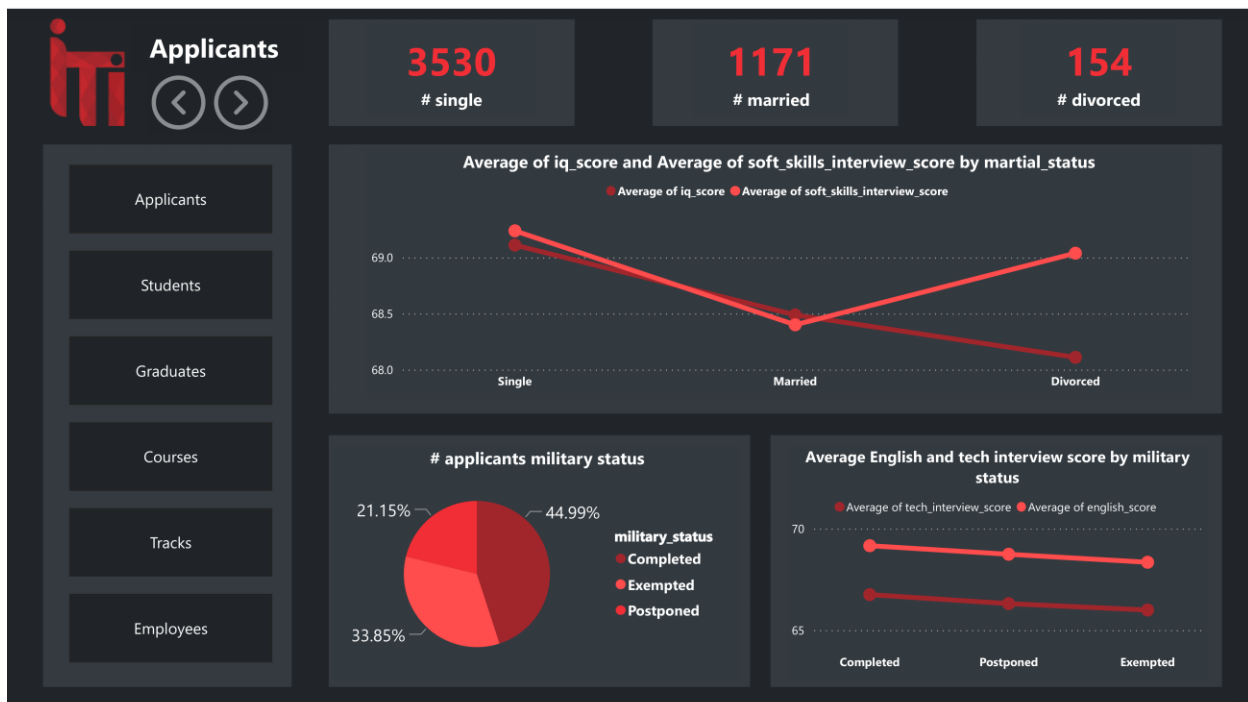
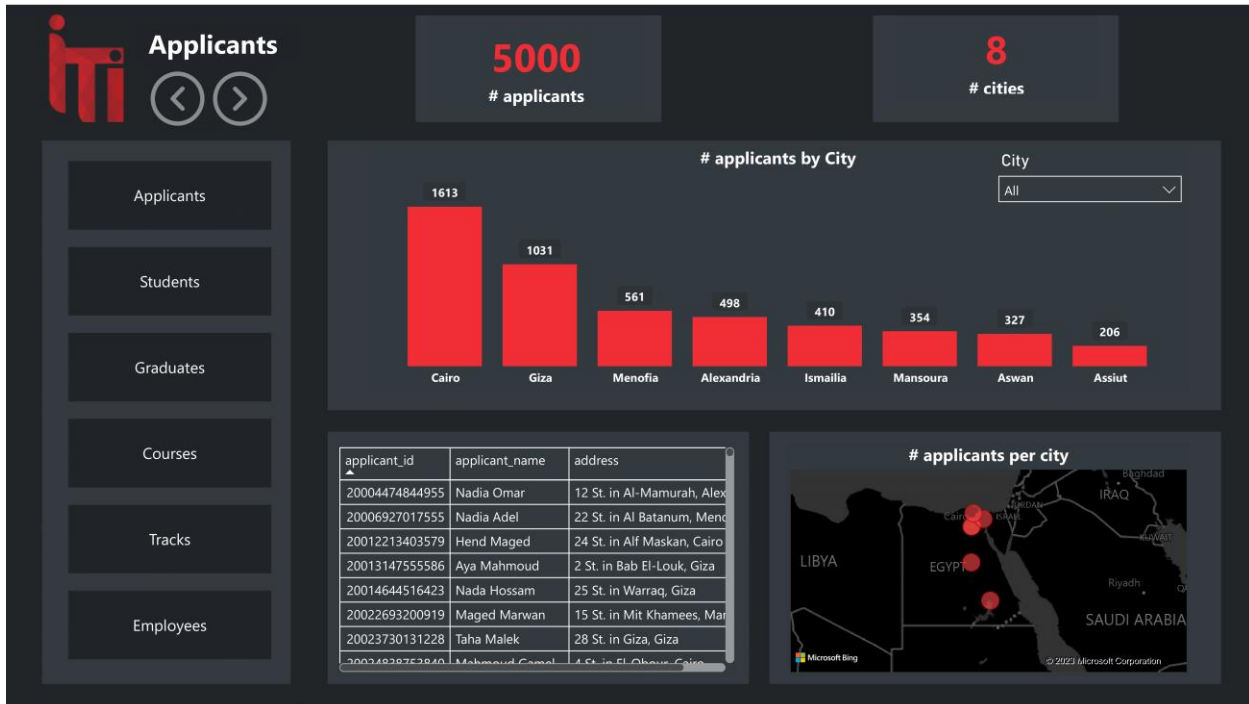
1 of 1 100% Find Next	
Report 5	
the number of questions: 15	
question	choice value
What is the purpose of encapsulation in OOP?	Inheritance
What is the purpose of encapsulation in OOP?	Polymorphism
What is the purpose of encapsulation in OOP?	Dynamic
What is the purpose of encapsulation in OOP?	Inheritance
What is polymorphism in OOP?	Overloading
What is polymorphism in OOP?	Override
What is polymorphism in OOP?	Different
What is polymorphism in OOP?	Blueprint
What is the purpose of an interface in OOP?	Implementation
What is the purpose of an interface in OOP?	Inheritance
What is the purpose of an interface in OOP?	Static

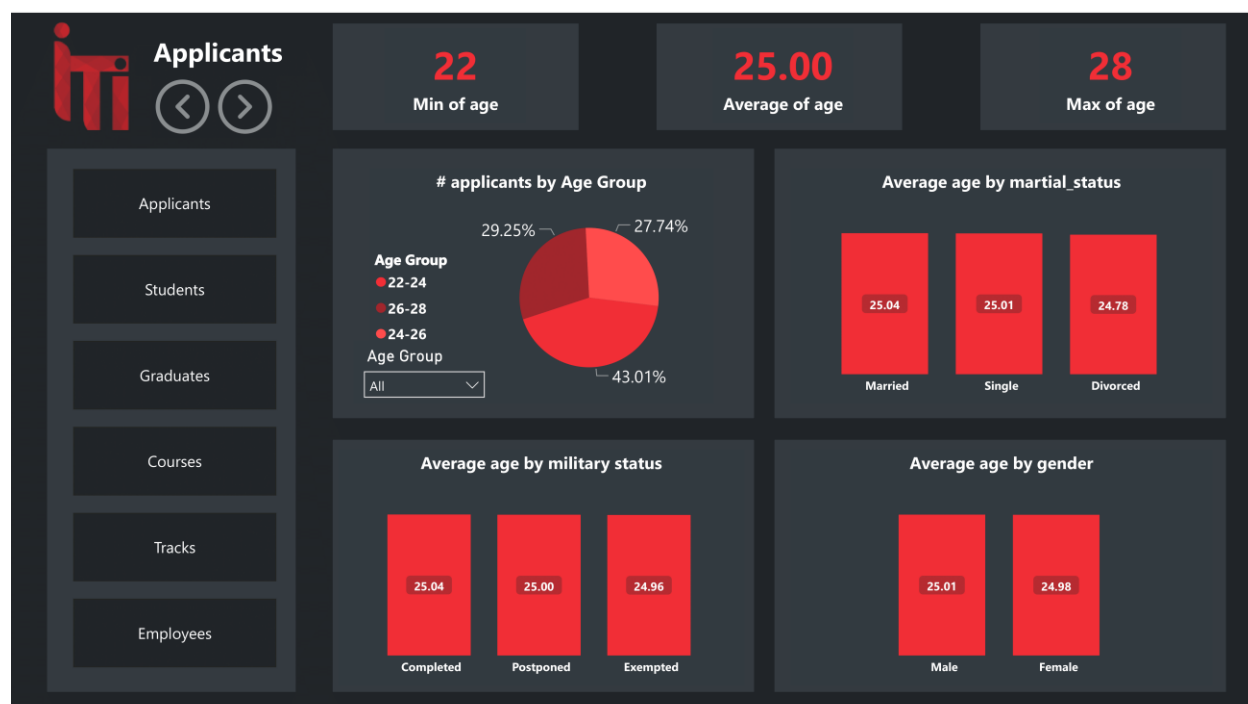
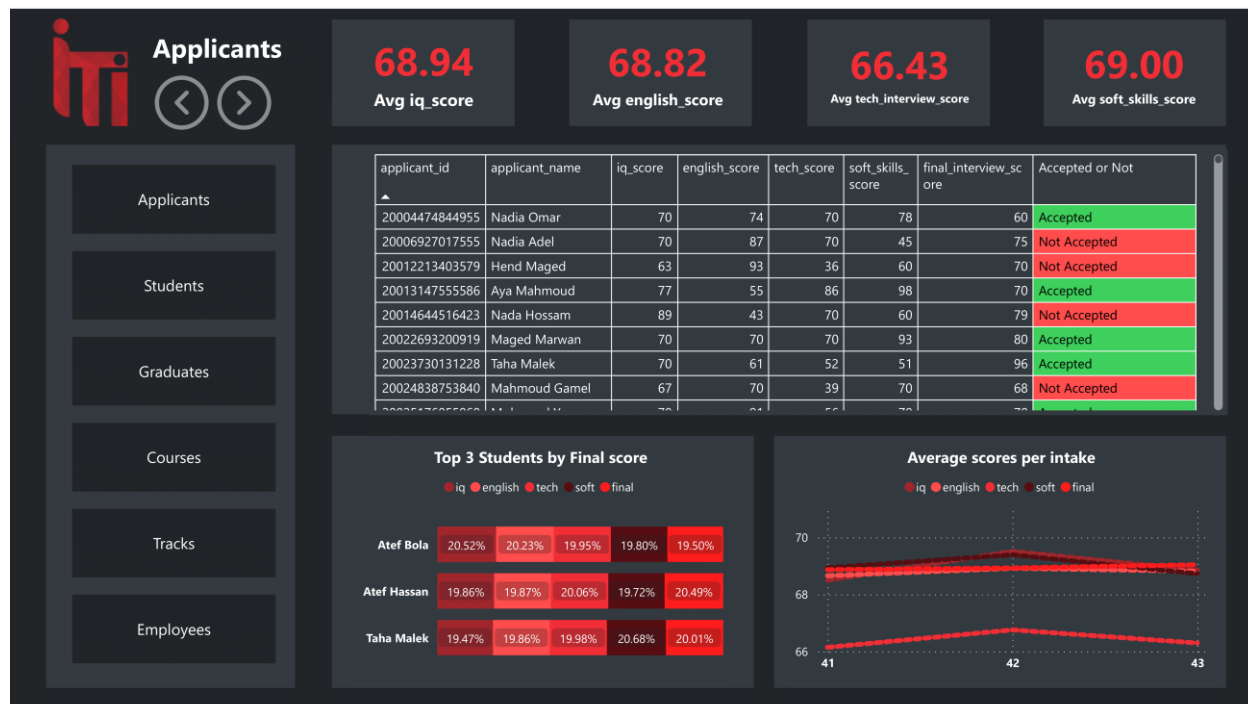
1 of 1 100% Find Next	
Report 6	
answers of student no: 20062573011238	
question	student answer
What is the purpose of encapsulation in OOP?	B
What is polymorphism in OOP?	D
What is the purpose of an interface in OOP?	B
Which of the following best describes the "is-a" relationship in OOP?	B
What is the purpose of inheritance in OOP?	D
Which of the following is an example of a static method in OOP?	D
What is the purpose of abstraction in OOP?	B
Which of the following is NOT a fundamental concept of OOP?	D
An object is an instance of a class.	A
In OOP inheritance allows a subclass to inherit properties	D

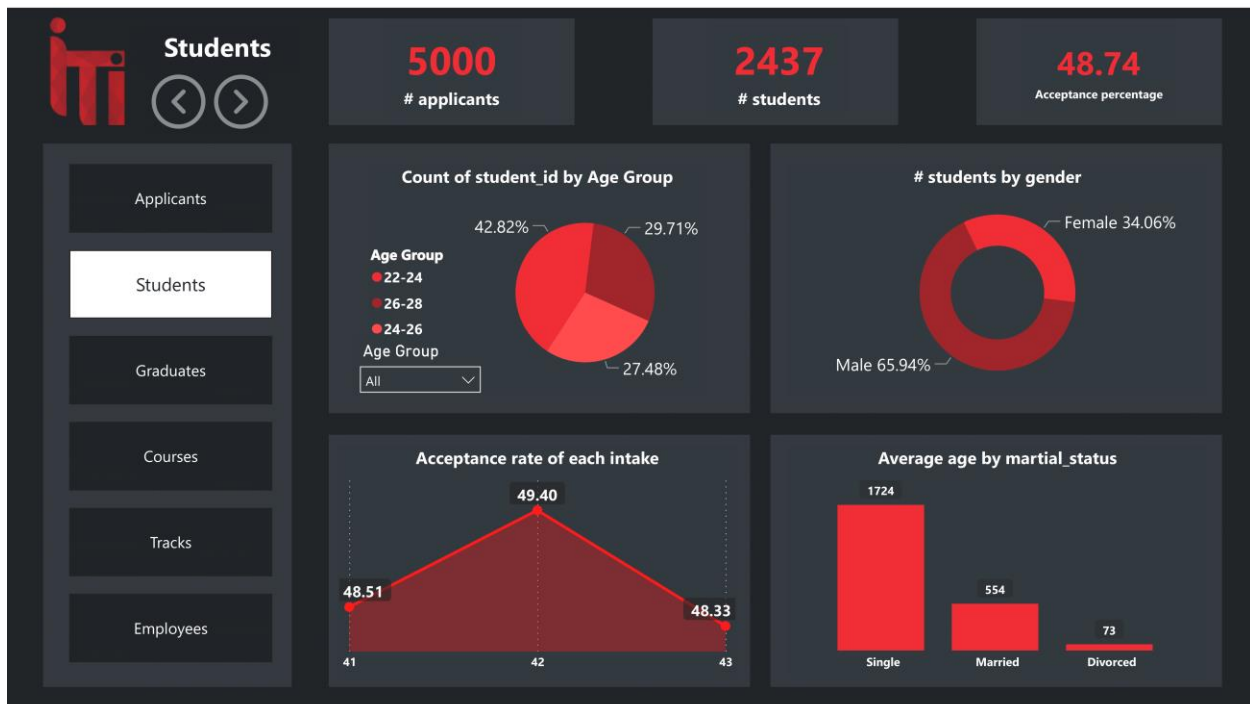
Error List

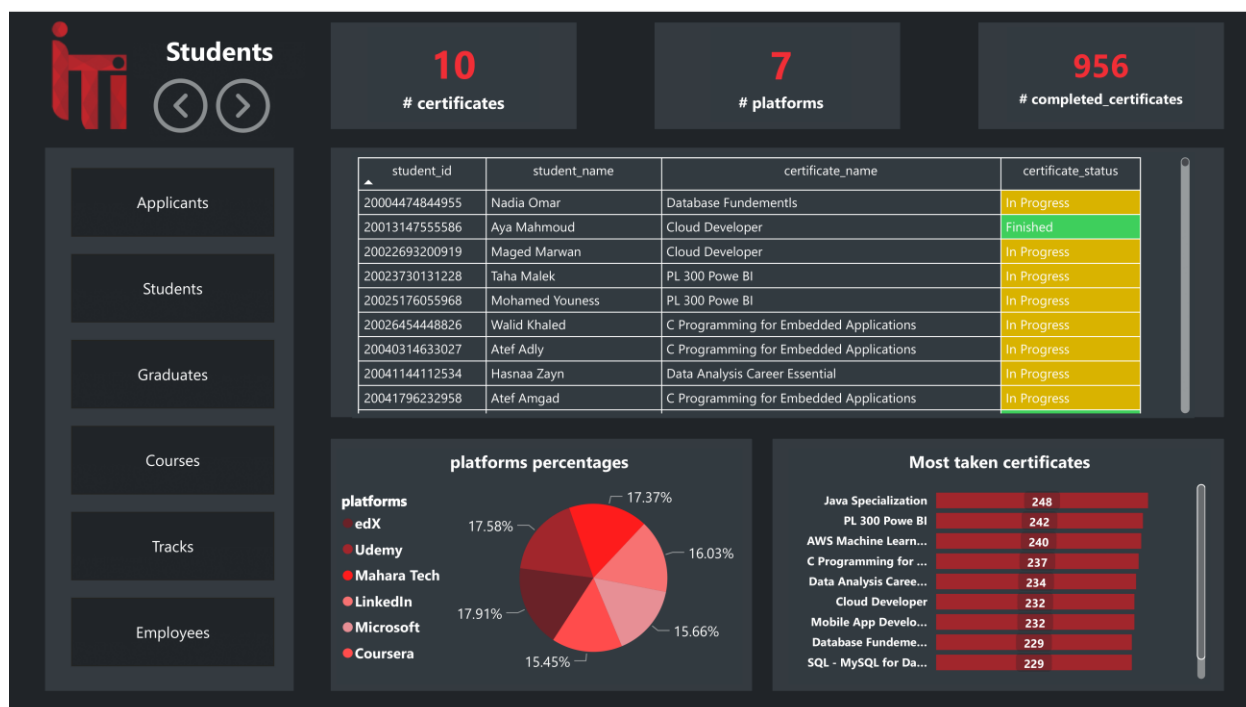
Dashboards

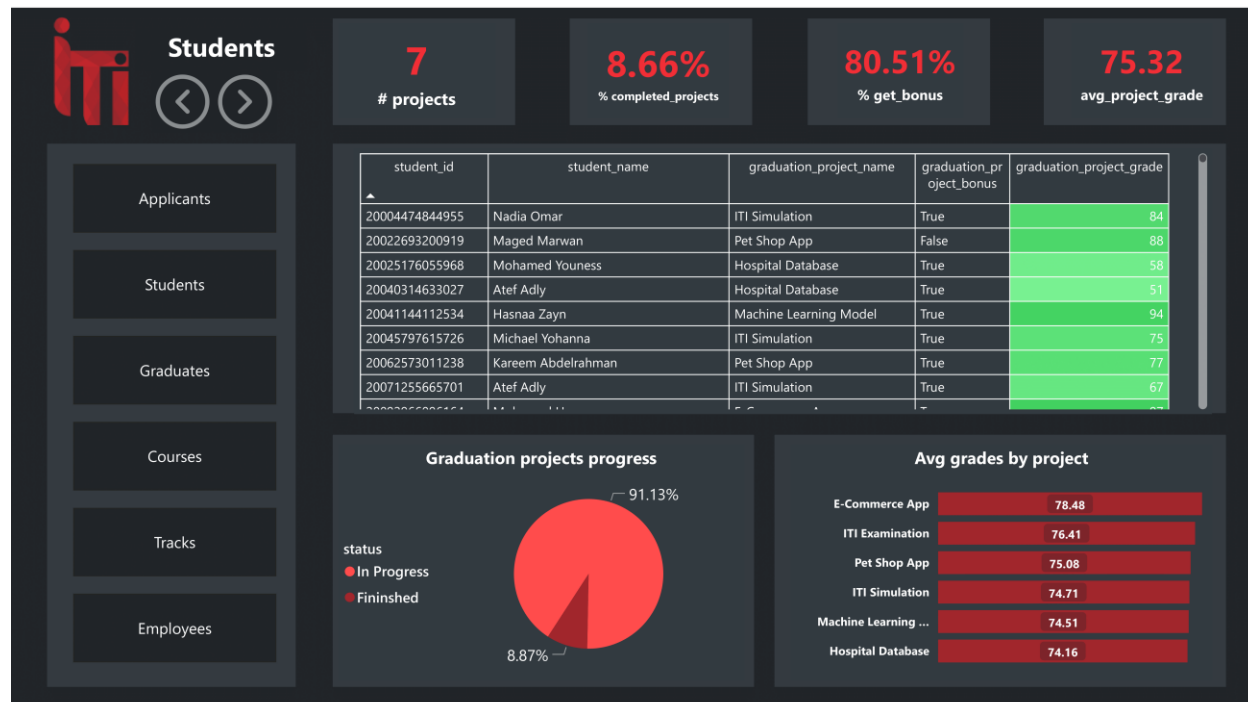












Applicants

Students

Graduates

Courses

Tracks

Employees

Average of facility_rating by facility_type

2.99

2.98

2.98

Hall

Lab

Services

Top 5 instructors by Avg rating

3.06

3.06

3.04

3.03

3.01

Halla Emad

Yasser Gamel

Mohamed Ashraf

Kamal Joseph

Amany Ali

