# ITI Examination System

*Fayoum Branch*

**Information Technology Institute**
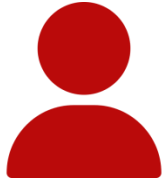
# Meet Our Team

**Sara Hamdy Khalaf**

**Madona Samy Kamel**

**Ahmed Marwan Ahmed**

**Mahmoud Ali Ahmed**

**Mahmoud Kamel Ali**

# Overview

❖ **About System:**

- o An automated online exam system for Information Technology Institute.

- o Efficient and scalable solution for managing online exams.

❖ **Key Objectives:**

- o **Design and implement** a relational SQL database for exam management.

- o **Store and manage** student records, exam details, and courses.

- o **Develop stored procedures** for inserting, updating, and deleting data.

- o **Automate exam creation and evaluation** for efficiency and accuracy.

- o **Generate reports** on student performance and exam results.

- o **Create Power BI dashboards** to visualize key metrics.

# Software Tools



**draw.io**

**Database Modeling(ERD & Mapping)**

**ChatGPT**

**Excel**

**Python**

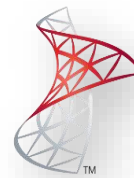**Data Generation**

**Power BI**
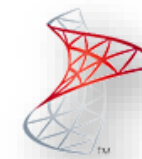
**Data Analysis & Visualization**

**SQL Server**

**SSMS**

**Database Management**

**SSIS**

**Data Integration**

**SSRS**

**Reporting**

# Project Workflow

Business & System Analysis

ERD

Mapping

Data Generation

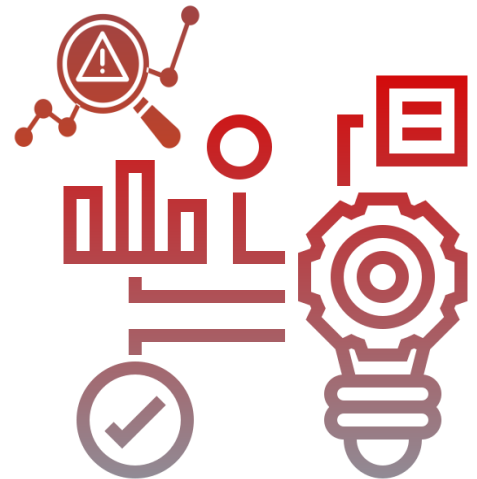Database Design

Data Integration

Stored Procedures
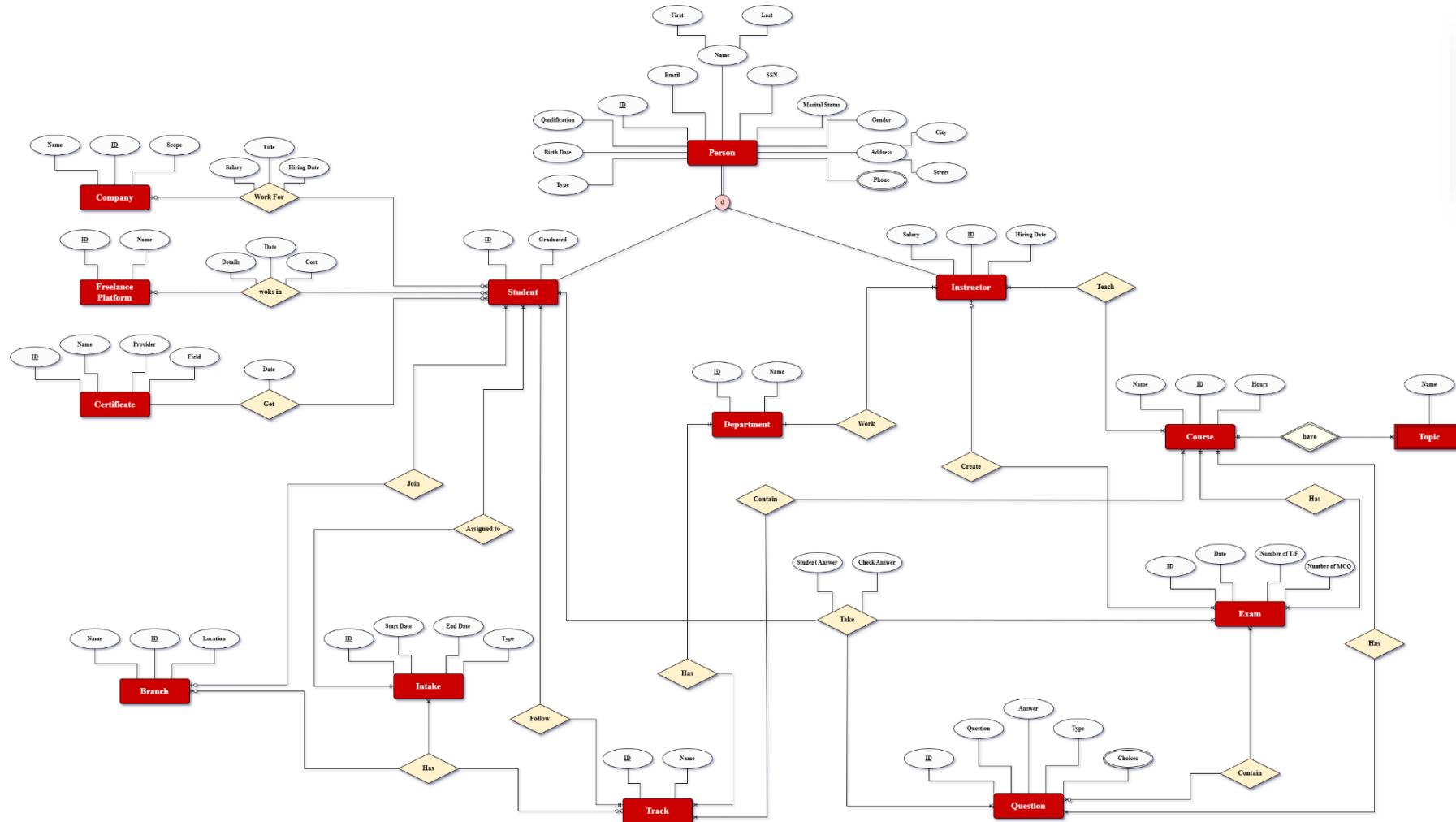
Reporting

Data  Modeling

Analysis & Visualization

# Business & System Analysis

o A deep understanding of the business and system
requirements was developed, leading to the design of the
ITI Examination System and an efficient **ERD** model to
optimize operations.
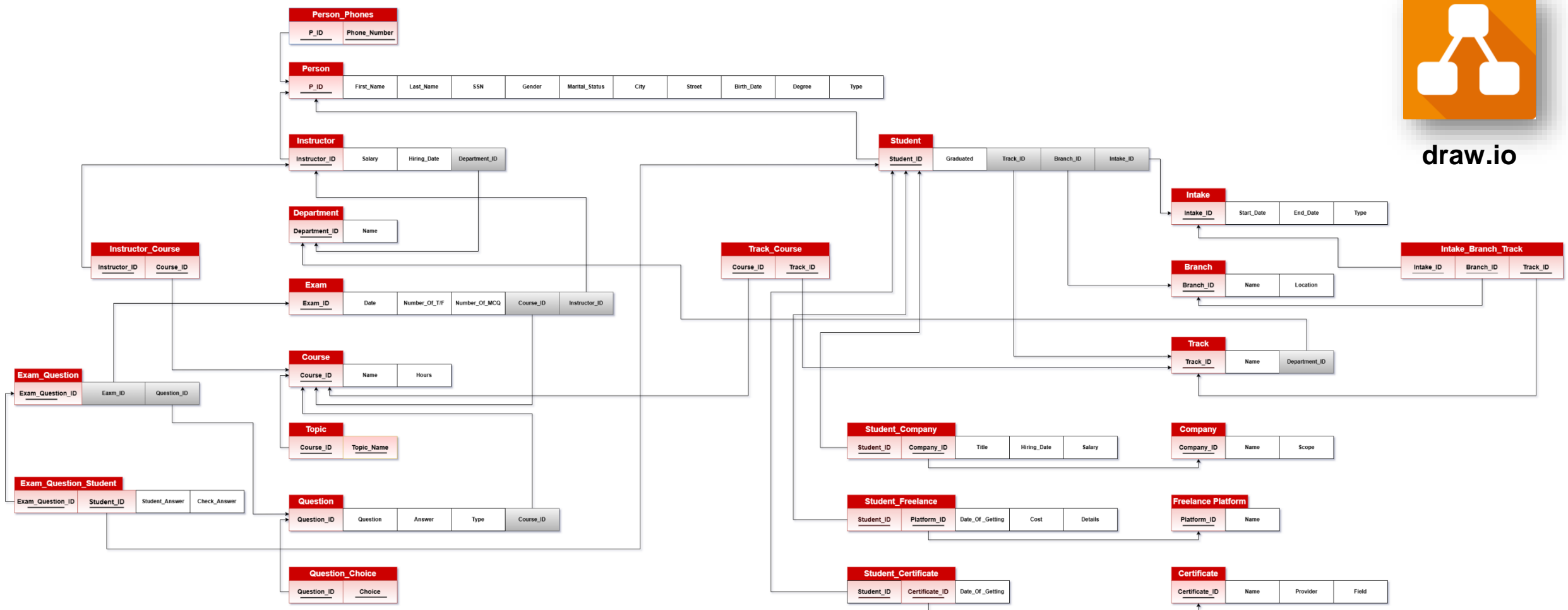
# ERD (Entity Relationship Diagram)

# Mapping

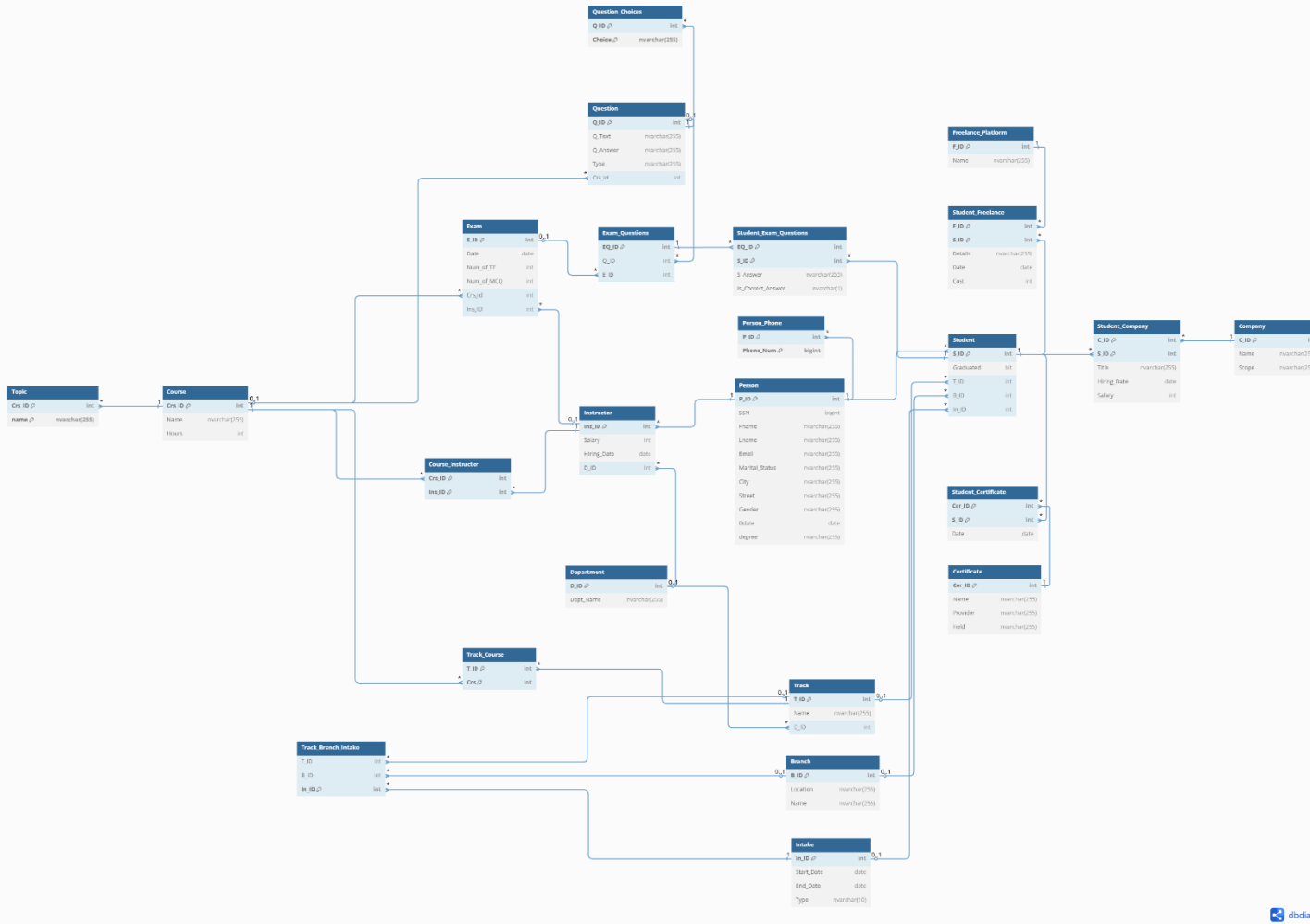**draw.io**

**Person_Phones**

| P_ID | Phone_Number |
|------|--------------|

**Person**

| P_ID | First_Name | Last_Name | SSN | Gender | Marital_Status | City | Street | Birth_Date | Degree | Type |
|------|-----------|-----------|-----|--------|----------------|------|--------|------------|--------|------|

**Instructor**

| Instructor_ID | Salary | Hiring_Date | Department_ID |
|---------------|--------|-------------|---------------|

**Student**

| Student_ID | Graduated | Track_ID | Branch_ID | Intake_ID |
|------------|-----------|----------|-----------|-----------|

**Intake**

| Intake_ID | Start_Date | End_Date | Type |
|-----------|-----------|----------|------|

**Department**

| Department_ID | Name |
|---------------|------|

**Instructor_Course**

| Instructor_ID | Course_ID |
|---------------|-----------|

**Track_Course**

| Course_ID | Track_ID |
|-----------|----------|

**Branch**

| Branch_ID | Name | Location |
|-----------|------|----------|

**Intake_Branch_Track**

| Intake_ID | Branch_ID | Track_ID |
|-----------|-----------|----------|

**Exam**

| Exam_ID | Date | Number_Of_T/F | Number_Of_MCQ | Course_ID | Instructor_ID |
|---------|------|---------------|---------------|-----------|---------------|

**Track**

| Track_ID | Name | Department_ID |
|----------|------|---------------|

**Exam_Question**

| Exam_Question_ID | Eaxm_ID | Question_ID |
|------------------|---------|-------------|

**Course**

| Course_ID | Name | Hours |
|-----------|------|-------|

**Student_Company**

| Student_ID | Company_ID | Title | Hiring_Date | Salary |
|------------|-----------|-------|-------------|--------|

**Company**

| Company_ID | Name | Scope |
|------------|------|-------|

**Topic**

| Course_ID | Topic_Name |
|-----------|------------|

**Exam_Question_Student**

| Exam_Question_ID | Student_ID | Student_Answer | Check_Answer |
|------------------|-----------|----------------|--------------|

**Question**

| Question_ID | Question | Answer | Type | Course_ID |
|-------------|----------|--------|------|-----------|

**Student_Freelance**

| Student_ID | Platform_ID | Date_Of_Getting | Cost | Details |
|------------|-------------|-----------------|------|---------|

**Freelance Platform**

| Platform_ID | Name |
|-------------|------|

**Question_Choice**

| Question_ID | Choice |
|-------------|--------|

**Student_Certificate**

| Student_ID | Certificate_ID | Date_Of_Getting |
|------------|----------------|-----------------|

**Certificate**

| Certificate_ID | Name | Provider | Field |
|----------------|------|----------|-------|

# Database Design



```sql
CREATE TABLE [dbo].[Person] (
    [P_ID] INT IDENTITY(1,1) PRIMARY KEY,
    [SSN] BIGINT NOT NULL,
    [Fname] NVARCHAR(255) NOT NULL,
    [Lname] NVARCHAR(255) NOT NULL,
    [Email] NVARCHAR(255) NOT NULL,
    [Marital_Status] NVARCHAR(255) NOT NULL CHECK ([Marital_Status] IN ('Married', 'Single', 'Divorced')),
    [City] NVARCHAR(255) NOT NULL,
    [Street] NVARCHAR(255) NULL,
    [Gender] NVARCHAR(255) NOT NULL CHECK ([Gender] IN ('Male', 'Female')),
    [Bdate] DATE NOT NULL,
    [Degree] NVARCHAR(255) NOT NULL
);
GO


CREATE TABLE [dbo].[Person_Phone] (
    [P_ID] INT NOT NULL,
    [Phone_Num] BIGINT NOT NULL CHECK ([Phone_Num] > 0),
    PRIMARY KEY ([P_ID], [Phone_Num]),
    FOREIGN KEY ([P_ID]) REFERENCES [dbo].[Person]([P_ID])
);
GO
```

# Data Generation

o Creating sample of dummy data for testing and validation.

o Using **ChatGPT** and **Excel** to generate student records, courses, and exams to ensure accurate system functionality.

**Excel**

**ChatGPT**
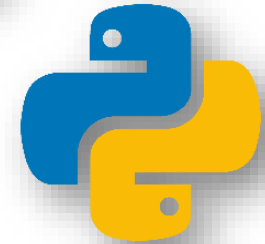
**Python**

**Data Generation**

# Data Integration



SSIS

**Data Integration**
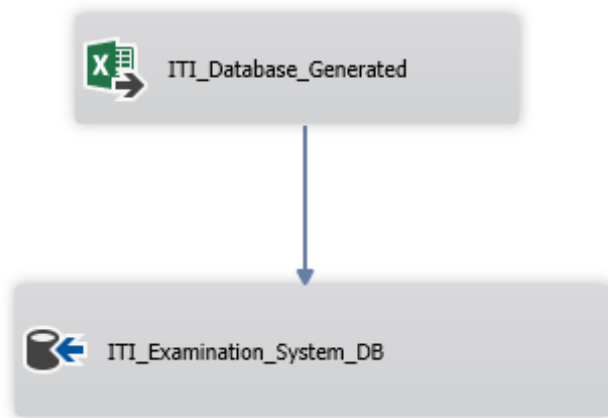
# Stored Procedures

❖ **Parameterized Dynamic SQL Stored Procedures**

❖ **Static CRUD Stored Procedures**

❖ **Exam Stored Procedures:**

   o Exam Generation

   o Exam Answers

   o Exam Correction

# Parameterized Dynamic SQL Stored Procedure

❑ **Takes input parameters, dynamically constructs an SQL query, executes it, and handles errors using TRY...CATCH.**

**SELECT**

```
ALTER proc [dbo].[SelectFromTable] @t_name nvarchar(max) , @col nvarchar(max)='*' , @condition nvarchar(max)='1=1'
as
begin
    begin try
        execute('select '+@col+' from '+@t_name+' where '+@condition)
    end try

    begin catch
        select 'There is an error in your inputs'
    end catch
end
```

# Parameterized Dynamic SQL Stored Procedure

❑ **Takes input parameters, dynamically constructs an SQL query, executes it, and handles errors using TRY...CATCH.**

**Insert**

```
ALTER proc [dbo].[InsertIntoTable] @t_name nvarchar(max) , @values nvarchar(max)
as
begin
    begin try
        execute('insert into '+@t_name+' values '+@values)
    end try
    begin catch
        select 'The is an error in your inputs'
    end catch
end
```

# Parameterized Dynamic SQL Stored Procedure

❑ **Takes input parameters, dynamically constructs an SQL query, executes it, and handles errors using TRY...CATCH.**

**Update**

```
ALTER proc [dbo].[UpdateTable] @t_name nvarchar(max) , @the_update nvarchar(max) , @condition nvarchar(max)='1=1'
as
begin
    begin try
        execute('update '+@t_name+' set '+@the_update+' where '+@condition)
    end try

    begin catch
        select 'The is an error in your inputs.'
    end catch
end
```

# Parameterized Dynamic SQL Stored Procedure

❑ **Takes input parameters, dynamically constructs an SQL query, executes it, and handles errors using TRY...CATCH.**

**Delete**

```
ALTER proc [dbo].[DeleteFromTable] @t_id nvarchar(max) , @condition nvarchar(max)='1=1'
as
begin
    begin try
        execute('delete from '+@t_id+' where '+@condition)
    end try
    begin catch
        select 'There is an error in your inputs.'
    end catch
end
```

# Static CRUD Stored Procedures

❑ Perform Create "Insert", Read "Select", Update, and Delete (CRUD) operations on a specific table with a predefined structure, using fixed queries.

**SELECT**

```
ALTER proc [dbo].[SelectFromTrack] @track_id int =0
as
begin
    if @track_id =0
        select * from Track
    else
    begin
        if exists(select  t_id from track where T_ID=@track_id)
            select * from track where t_id = @track_id
        else
            select 'Invalid Track ID.' as [Error Message]
    end
end
```

# Static CRUD Stored Procedures

❑ **Perform Create "Insert", Read "Select", Update, and Delete (CRUD) operations on a specific table with a predefined structure, using fixed queries.**

**Insert**

```
ALTER proc [dbo].[InsertIntoTrack] @name nvarchar(50) , @department_id int
as
begin
    if exists(select * from track where name=@name and D_ID = @department_id)
        select 'This track is already exists.' as [Error Message]
    else
        insert into Track values(@name , @department_id)
end
```

# Static CRUD Stored Procedures

❑ **Perform Create "Insert", Read "Select", Update, and Delete (CRUD) operations on a specific table with a predefined structure, using fixed queries.**

**Update**

```
ALTER proc [dbo].[UpdateTrack] @track_id int , @new_name nvarchar(50) , @new_department_id int
as
begin
    if exists(select  t_id from track where T_ID = @track_id)
    begin
            begin try
                update Track set [Name] = @new_name , d_id = @new_department_id where T_ID = @track_id
            end try
            begin catch
                select 'There is an error in updating' as [Error Message]
            end catch
    end
        else
            select 'Invalid Track ID.' as [Error Message]
end
```

# Static CRUD Stored Procedures

❑ **Perform Create "Insert", Read "Select", Update, and Delete (CRUD) operations on a specific table with a predefined structure, using fixed queries.**

**Delete**

```
ALTER proc [dbo].[DeleteFromTrack] @track_id int
as
begin
    if exists(select  T_ID from track where t_id=@track_id )
        begin
            begin try
                delete from track where T_ID = @track_id
            end try
            begin catch
                select 'There is an error in deleting.' as [Error Message]
            end catch
        end
    else
        select 'This id does not exists.' as [Error Message]
end
```

# Reporting (SSRS)

o SSRS reports retrieve data using **SQL Stored Procedures**, ensuring optimized queries, parameterized filtering, and efficient report generation.

❖ **Students Information By Department**

❖ **Student Grades For All Courses**

❖ **Instructor's Courses**

❖ **Course Topics**

❖ **Exam Questions**

❖ **Students' Questions & Answers**

## Information Technology Institute

### Student information

| ID | Name | Email | Phone | Track | Department |
|----|------|-------|-------|-------|------------|
| 29 | Wael Sami | wael.sami@gmail.com | 200106030199 | Embedded Systems | Industrial Systems |
| 31 | Sara Mahmoud | sara.mahmoud@gmail.com | 200157877226 | Digital IC Design | Industrial Systems |
| 35 | Rami Khaled | rami.khaled@gmail.com | 200154447733 | Digital IC Design | Industrial Systems |
| 52 | Samir Wael | samir.wael@gmail.com | 200157098205 | Digital IC Design | Industrial Systems |
| 49 | Hoda Mostafa | hoda.mostafa@gmail.com | 200157986265 | Embedded Systems | Industrial Systems |
| 79 | Mahmoud Wael | mahmoud.wael@gmail.com | 200159825066 | Industrial Automation | Industrial Systems |
| 117 | Ahmed Sayed | ahmed.sayed@gmail.com | 200118975780 | Wireless Communications | Industrial Systems |
| 154 | Hany Tarek | hany.tarek@gmail.com | 200154835049 | Wireless Communications | Industrial Systems |
| 160 | Karim Fathy | karim.fathy@gmail.com | 200105430809 | Embedded Systems | Industrial Systems |
| 175 | Mohamed Tamer | mohamed.tamer@gmail.com | 200129017504 | Embedded Systems | Industrial Systems |
| 176 | Nour Hany | nour.hany@gmail.com | 200109226386 | Digital IC Design | Industrial Systems |
| 178 | Salma Adel | salma.adel@gmail.com | 200155182952 | Wireless Communications | Industrial Systems |
| 170 | Youssef Hossam | youssef.hossam@gmail.com | 200103778511 | Wireless Communications | Industrial Systems |
| 212 | Fatma Reda | fatma.reda@gmail.com | 200159895770 | Industrial Automation | Industrial Systems |
| 213 | Rami Sami | rami.sami@gmail.com | 200115945939 | Wireless Communications | Industrial Systems |
| 214 | Hagar Helmy | hagar.helmy@gmail.com | 200159723622 | Industrial Automation | Industrial Systems |
| 209 | Islam Saeed | islam.saeed@gmail.com | 200159232633 | Embedded Systems | Industrial Systems |
| 219 | Islam Gamal | islam.gamal@gmail.com | 200129252322 | Digital IC Design | Industrial Systems |
| 233 | Salma Nasser | salma.nasser@gmail.com | 200151888902 | Digital IC Design | Industrial Systems |
| 235 | Nour Mahmoud | nour.mahmoud@gmail.com | 200121585788 | Industrial Automation | Industrial Systems |
| 248 | Islam Gamal | islam.gamal@gmail.com | 200123800406 | Wireless Communications | Industrial Systems |
| 269 | Islam Reda | islam.reda@gmail.com | 200118144989 | Wireless Communications | Industrial Systems |
| 278 | Mariam Gamal | mariam.gamal@gmail.com | 200105501165 | Digital IC Design | Industrial Systems |
| 280 | Fatma Tarek | fatma.tarek@gmail.com | 200117527862 | Digital IC Design | Industrial Systems |
| 284 | Yasmin Helmy | yasmin.helmy@gmail.com | 200151587030 | Industrial Automation | Industrial Systems |

# Student Grades For All Courses Report

Student ID  160



**Student Grades For All Courses**

| Student ID | Course Name | Grade |
|---|---|---|
| 160 | Frontend Frameworks: Vue.js Essentials | 60% |

```sql
CREATE PROCEDURE GetStudentGrades
    @StudentID INT
AS
BEGIN
    SET NOCOUNT ON;

    SELECT
        s.s_id AS StudentID,
        c.name AS CourseName,
        CAST(COUNT(CASE WHEN qse.s_answer = q.Q_Answer THEN 1 END) * 10 AS NVARCHAR(10)) + '%' AS Grade
    FROM Student_Exam_Questions qse
    JOIN Exam_Questions qe ON qse.eq_id = qe.eq_id
    JOIN question q ON qe.q_id = q.q_id
    JOIN exam e ON qe.e_id = e.e_id
    JOIN course c ON e.crs_id = c.crs_id
    JOIN student s ON qse.s_id = s.s_id
    WHERE qse.s_id = @StudentID
    GROUP BY s.s_id, c.name;
END;
GO
```

# Instructor's Courses Report

ins ID 2                                                              View Report

◄◄ 1  of 1 ► ►| | ● ⊗ ⊕ | 🖶 📄 🔍 📄▾ | 100%  ▾ |  Find | Next

**Information Technology Institute**

| Name of Courses | Number of Students |
|---|---|
| Building Web Apps with React.js | 56 |

```
Create proc [dbo].[ins_info]  @ins_ID int
as
 select c.Name , count(s.S_ID) as number_of_student
 from Instructor i
 join Course_Instructor ci
 on i.Ins_ID = ci.Ins_ID
 join Course c
 on c.Crs_ID = ci.Crs_ID
 join Track_Course tc
 on tc.Crs_ID = c.Crs_ID
 join Track t
 on t.T_ID = tc.T_ID
 join Student s
 on s.T_ID =t.T_ID
 where i.Ins_ID = @ins_ID
 group by c.Name
Go
```

# Course Topics Report



```sql
Create proc [dbo].[crs_topics] (@course_id as int)
as
  select c.Name as Course , t.name as Topics
  from Course c
  join topic t
  on t.Crs_ID = c.Crs_ID
  where c.Crs_ID = @course_id
Go
```

# Exam Questions Report



```sql
Create proc [dbo].[GetExamQuestions] @ex_id int
as
begin

    select q.Question , qc.Choise
    from Questions_Exam qe , Question q , Questions_Choices qc
    where qe.Q_ID = q.Q_ID and q.Q_ID = qc.Q_ID and qe.E_ID = @ex_id
    union
    select q.Question , 'True'
    from Questions_Exam qe , Question q
    where qe.Q_ID = q.Q_ID and qe.E_ID = @ex_id and q.Type like 'TRUE/FALSE'
    union
    select q.Question , 'False'
    from Questions_Exam qe , Question q
    where qe.Q_ID = q.Q_ID  and qe.E_ID = @ex_id and q.Type like 'TRUE/FALSE'
    order by 1,2 desc


end
```

# Students' Questions & Answers Report

exam id: 6    stu id: 160    [View Report]

| 1 | of 1 |  | 100% |  | Find | Next |

## Student's Questions And Answers

| Question | S Answer |
|---|---|
| What is the main feature of Vue.js? | Reactive data binding |
| What is the main advantage of using Vue.js for frontend development? | JavaScript |
| Vue.js uses which language for templates? | HTML |
| Which directive is used for looping in Vue.js? | v-for |
| Vue components can communicate using: | Props and events |
| v-for is used for conditional rendering in Vue.js. | TRUE |
| Vue.js supports two-way data binding. | FALSE |
| Vue components must always have a single root element. | TRUE |
| Vue.js doesn't support conditional rendering. | FALSE |
| Vue Router is required for all Vue projects. | TRUE |

```sql
Create proc show_qu  @exam_id int , @stu_id int
as
select q.Q_Text , qs.S_Answer
from Question q
join Exam_Questions qe
on q.Q_ID = qe.Q_ID
join Student_Exam_Questions qs
on qs.EQ_ID=qe.EQ_ID
where qs.S_ID= @stu_id and qe.E_ID=@exam_id

GO
```

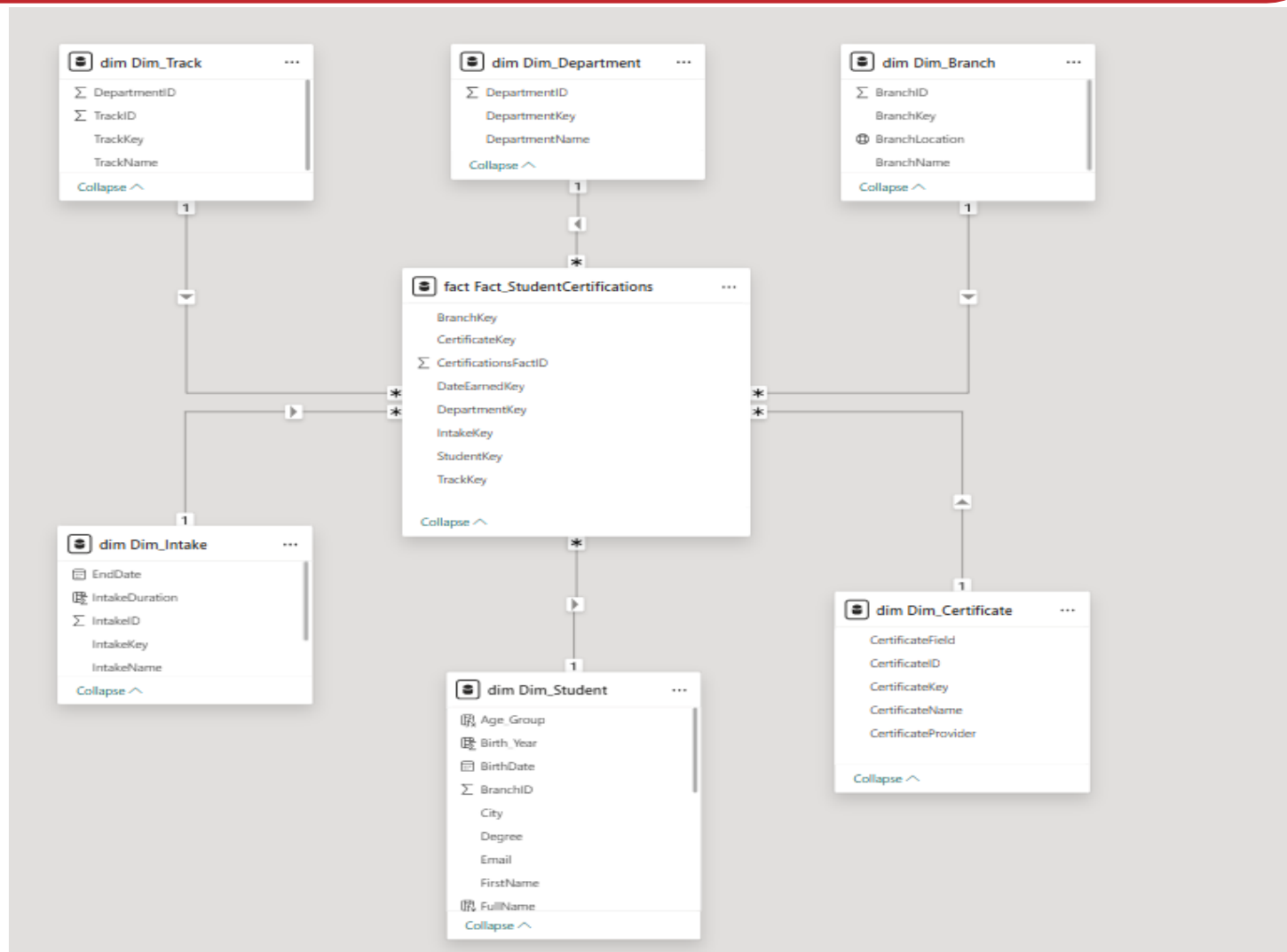# Data Modeling (Student Performance On Exam)
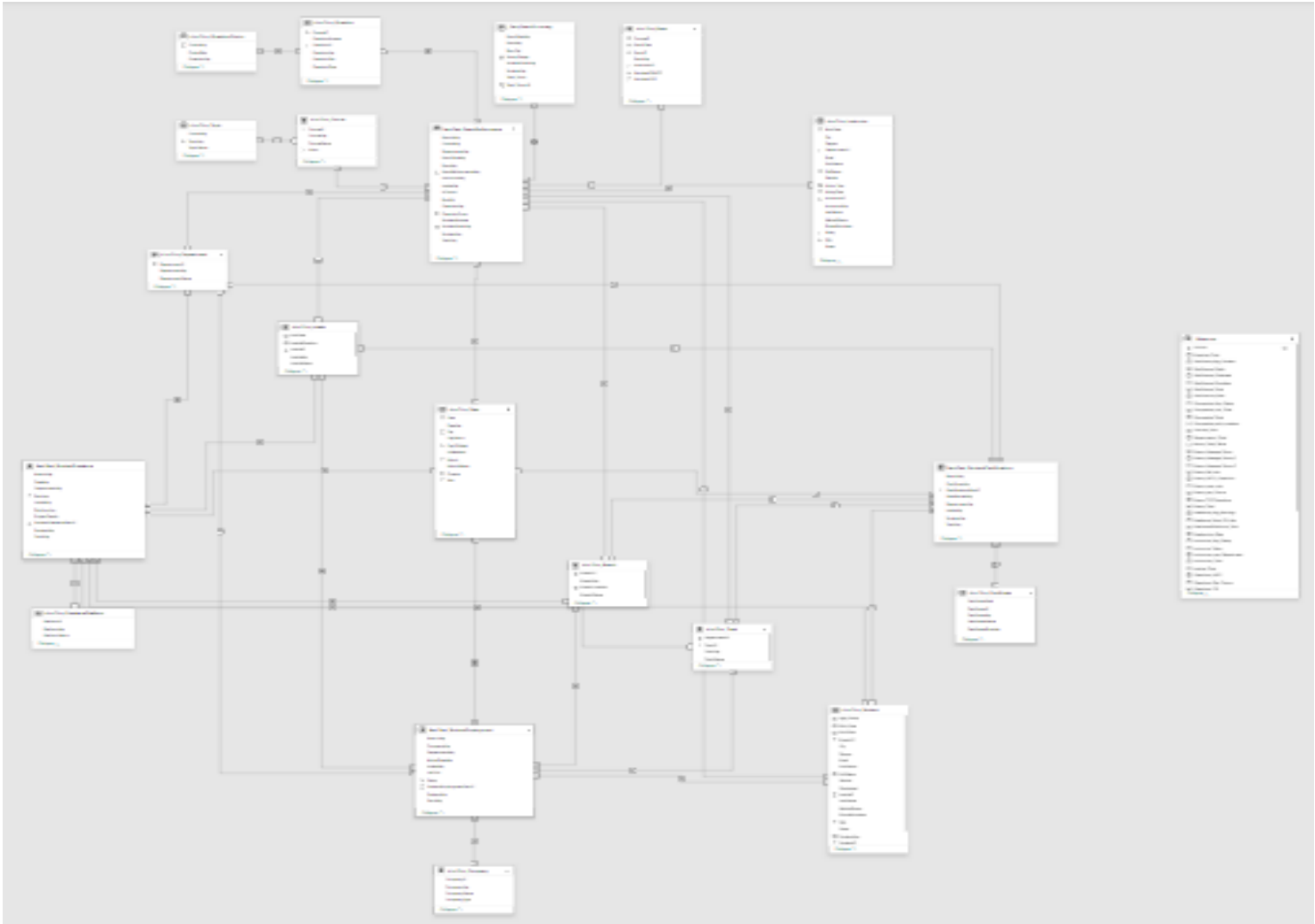
# Data Modeling (Employment)

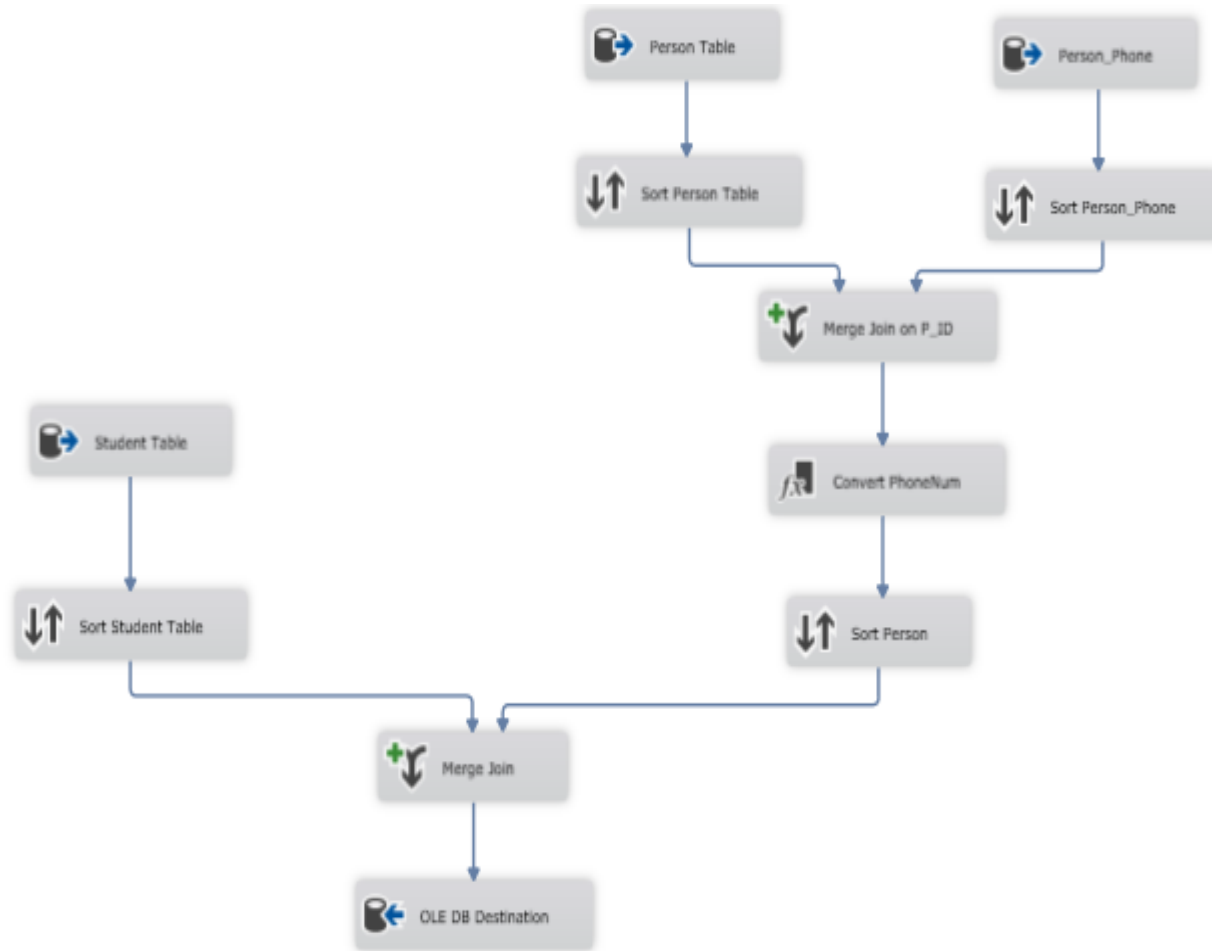# Data Modeling (Freelancing)
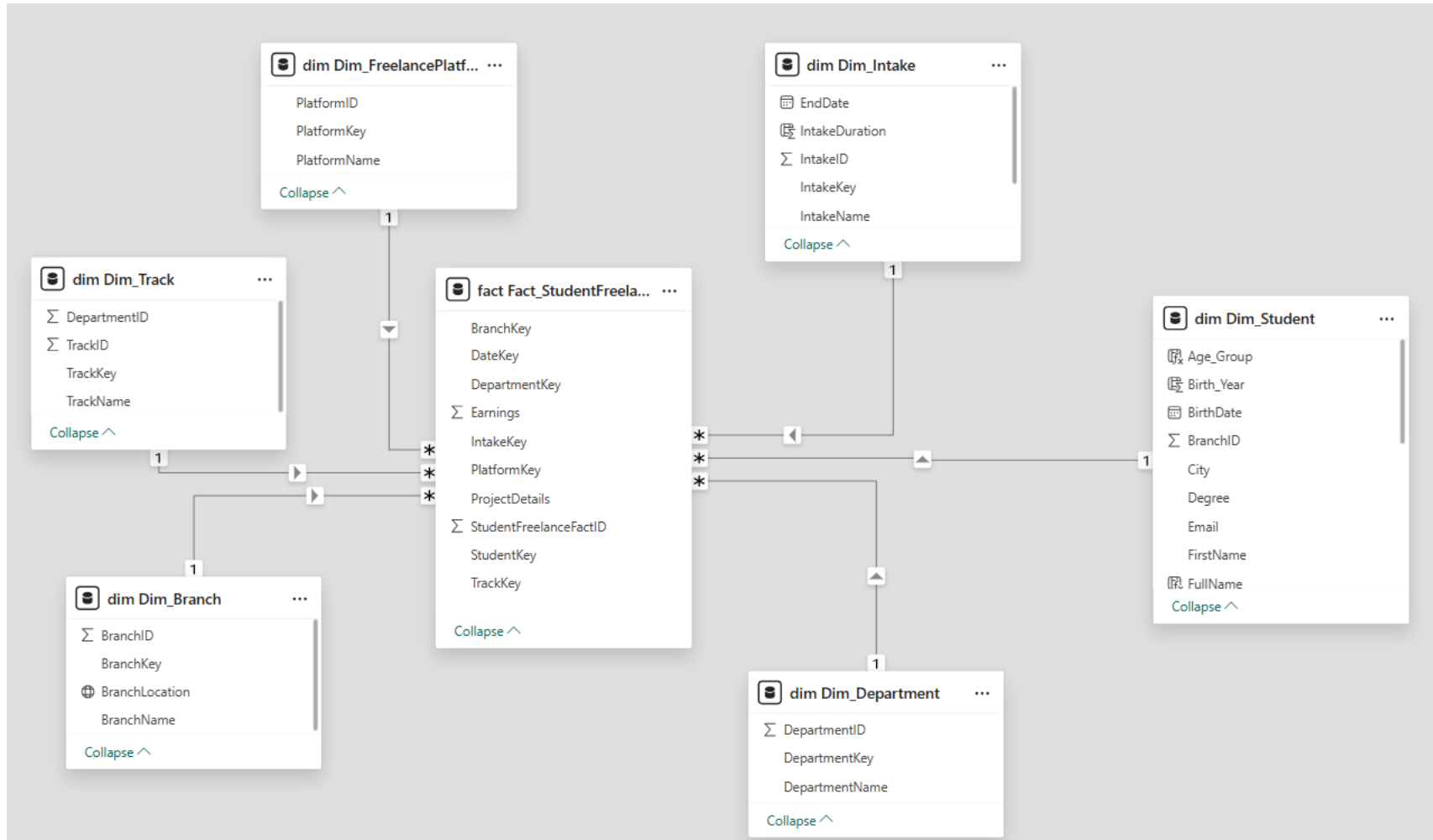
# ETL For Data Modeling



**SSIS**

**ETL**
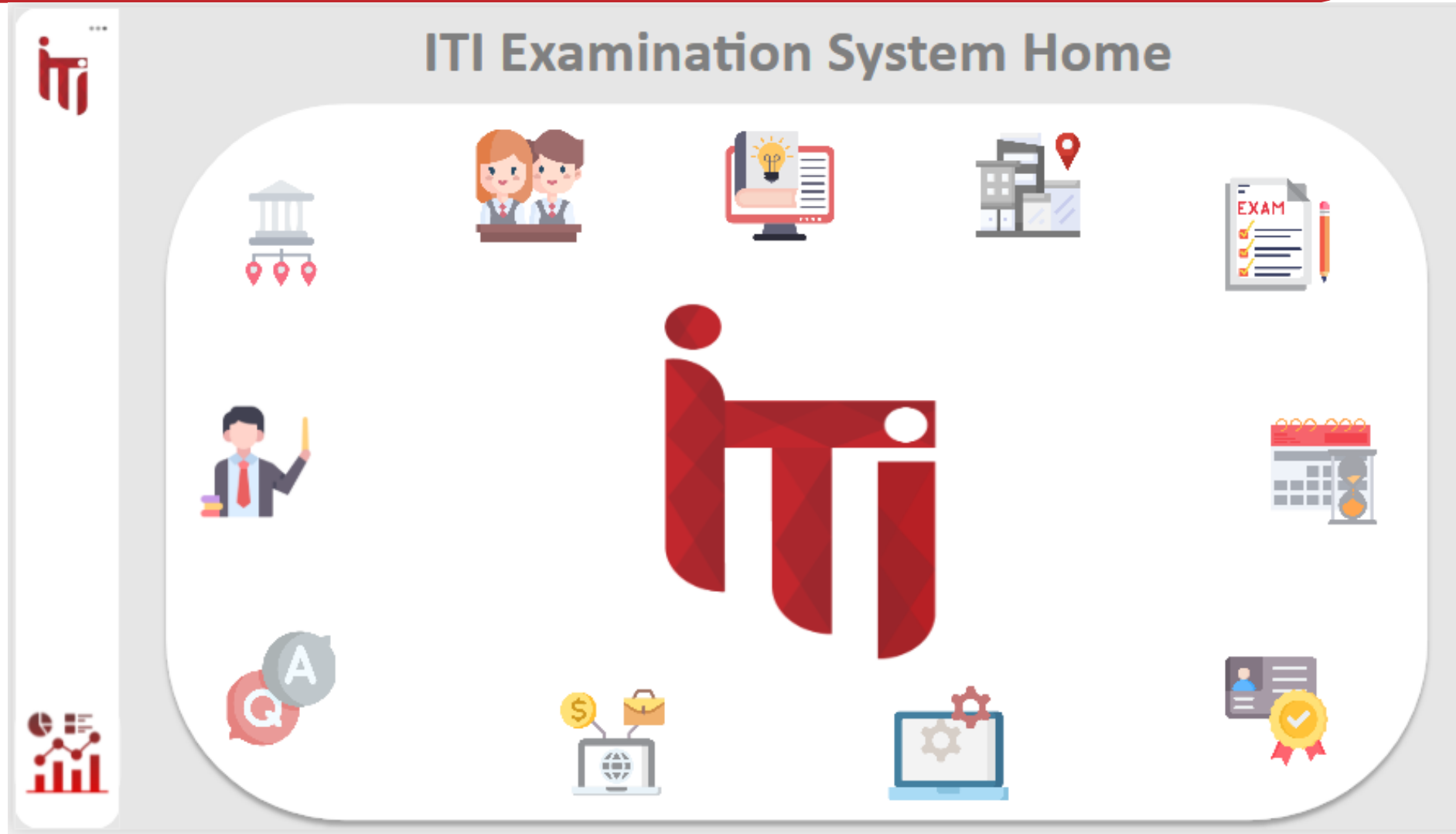
# Data Analysis & Visualization (Dashboards)

❖ **Home Page**

❖ **Dashboards Overview**

❖ **Analysis Overview**

❖ **Detailed Analysis**

ITI Examination System Home
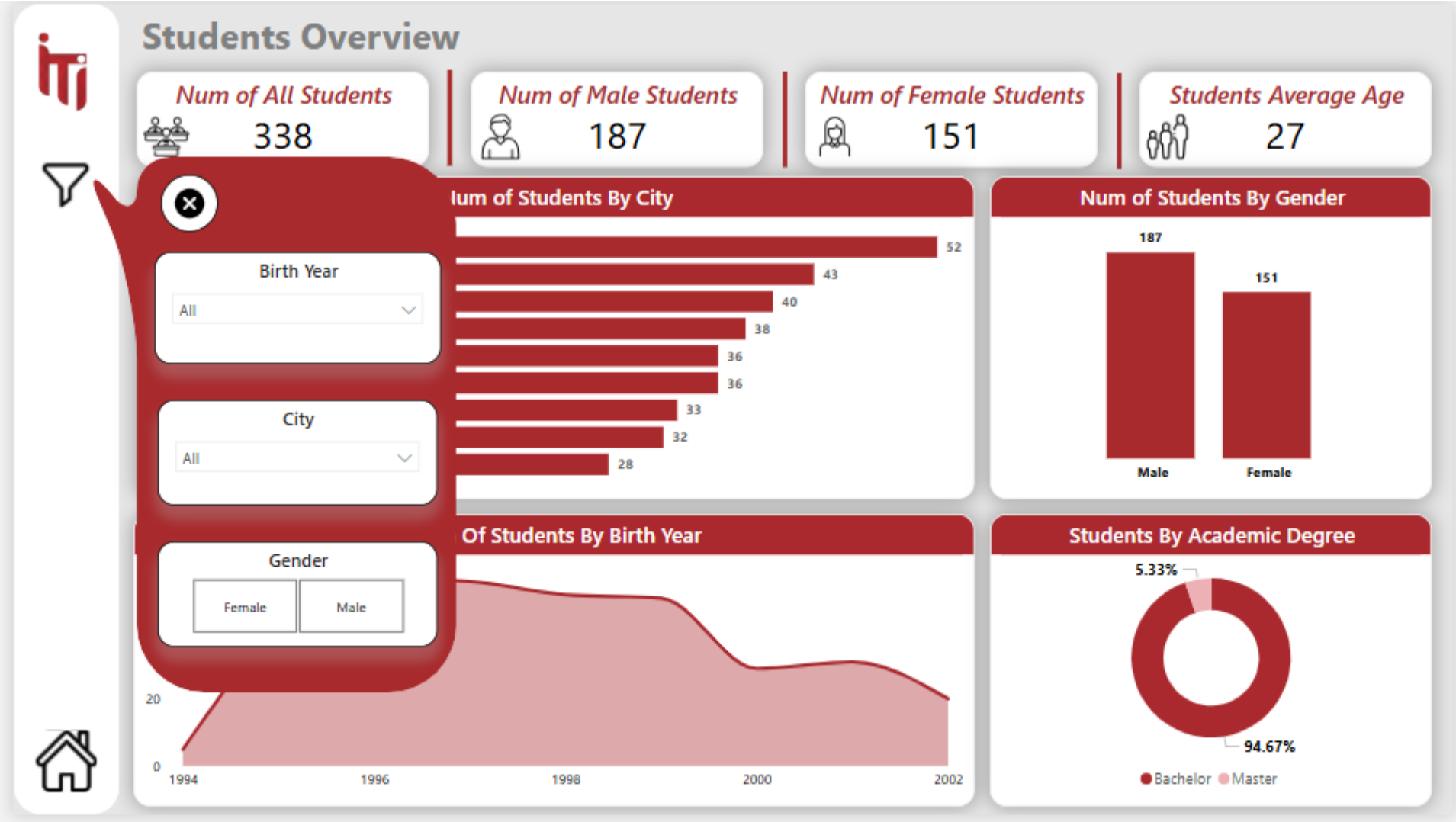
# Instructor Overview Page

# Branch Overview Page

## Branches Overview

| Num of Branches | Num Of Students |
|:---:|:---:|
| 7 | 338 |

### Num of Students Per Branch



### Branchs Location



● Cairo University  ● Fayoum  ● Mansora  ● Minya  ● New Capital  ● Smart Village  ● Sohag
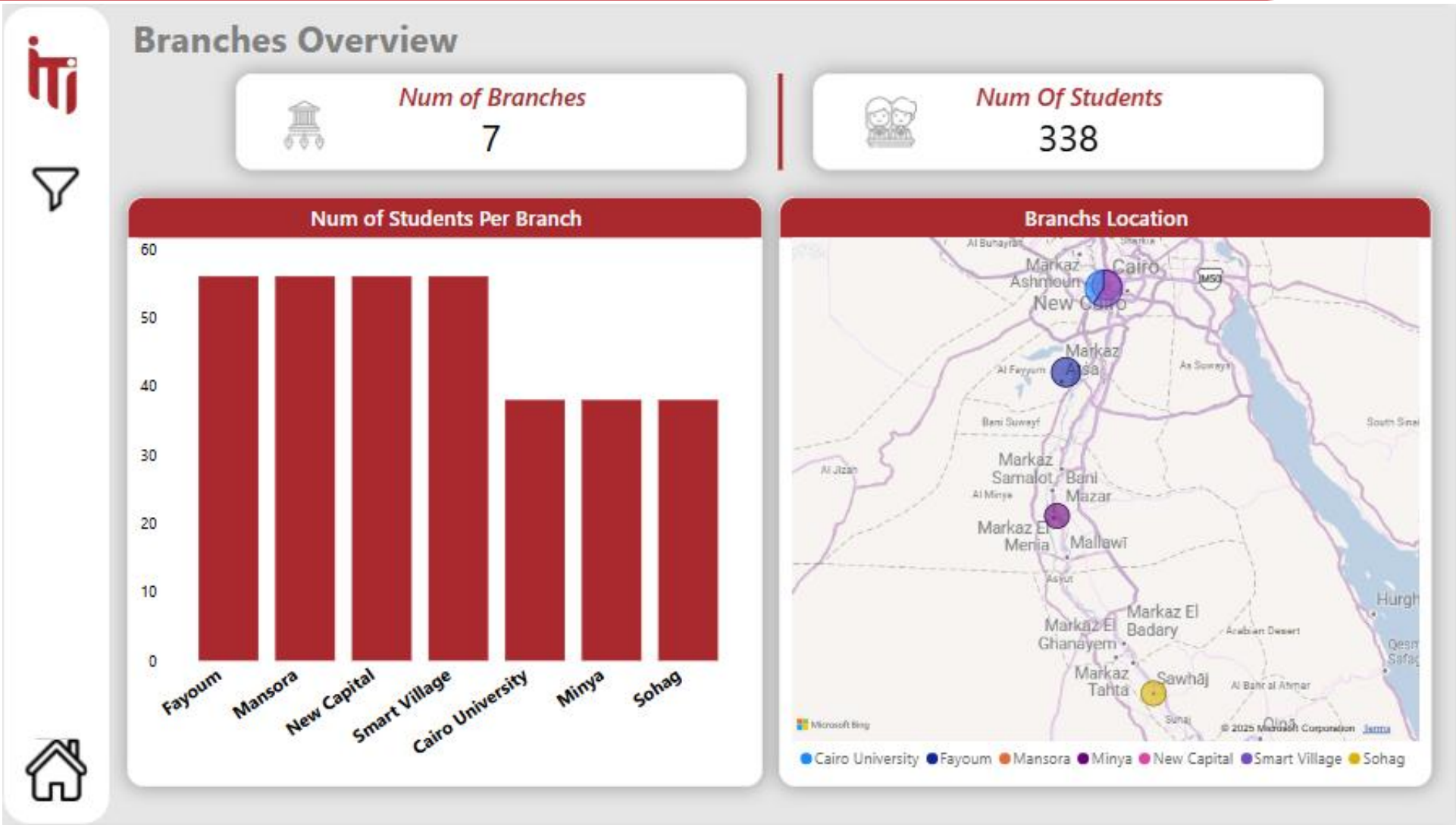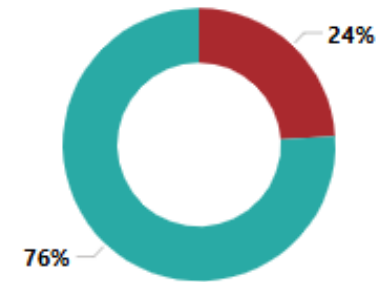
Students' Performance on Exams

# Student Performance On Exam Overview

## Student Exam Performance

| Total Exams Completed | Avg Exam Score (%) | Exam Pass Rate (%) | Exam Fail Rate (%) |
|---|---|---|---|
| 2 | 32.94% | 23.53% | 76.47% |

### Trend of Avg Exam Scores Over Time



### Pass vs Fail Distribution



- 24%
- 76%
- ● Failing Rate  ● Passing Rate

### Exam Score Distribution



### # Pass & Fail by Gender



- ● Fail  ● Pass
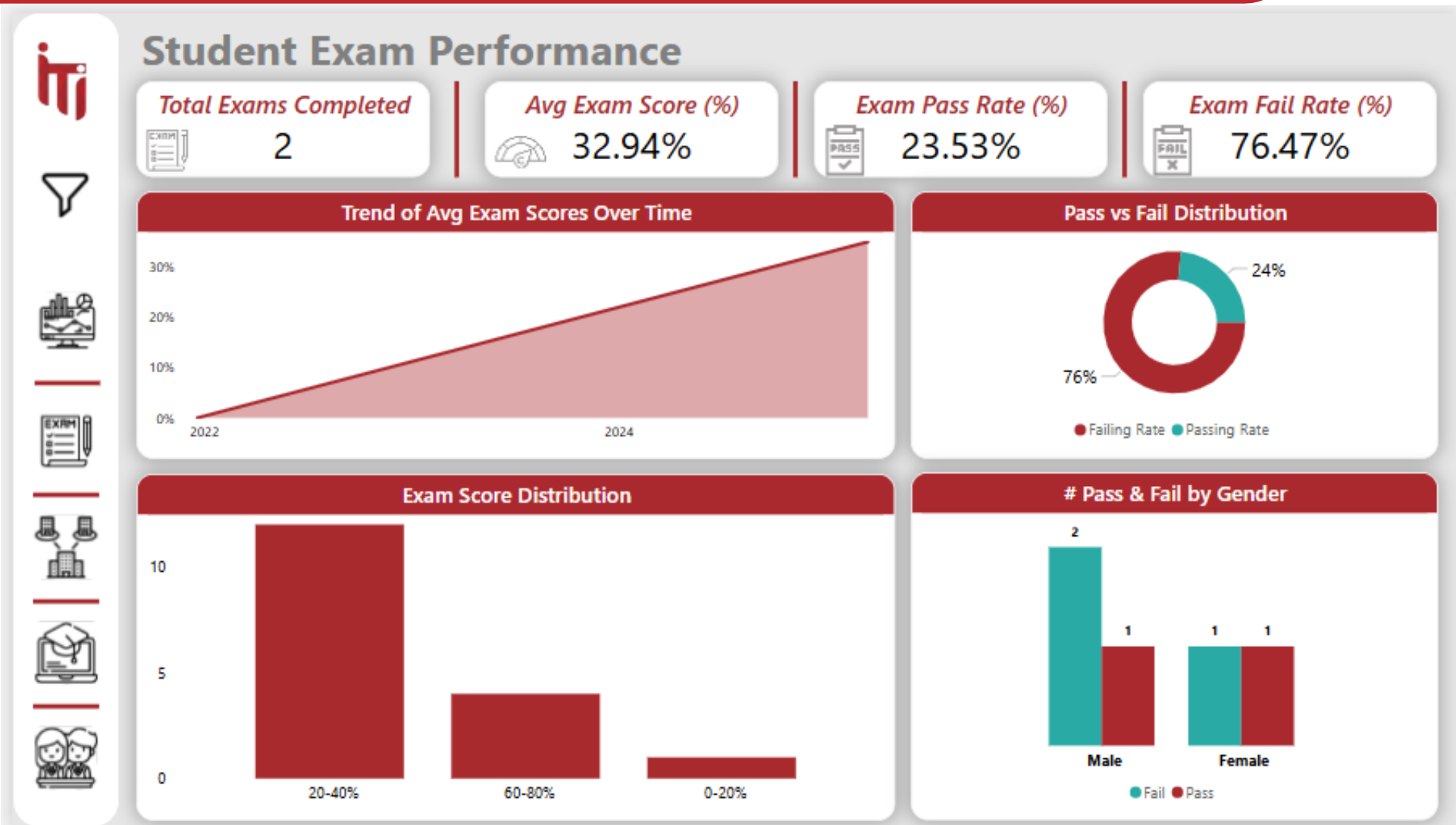
# Student Performance On Exam Analysis

## Student Profile & Exam Summary

### Student Exam Score

| FullName | IntakeName | BranchName | TrackName | CourseName | ExamID | Total_Score % |
|---|---|---|---|---|---|---|
| Hoda Mostafa | Intake 5 - ICC | Mansora | Embedded Systems | Frontend Frameworks: Vue.js Essentials | 6 | 20% |
| Youssef Magdy | Intake 5 - ICC | Mansora | Embedded Systems | Frontend Frameworks: Vue.js Essentials | 6 | 20% |
| Ahmed Tarek | Intake 5 - ICC | Mansora | Embedded Systems | Frontend Frameworks: Vue.js Essentials | 6 | 30% |
| Islam Saeed | Intake 5 - ICC | Mansora | Embedded Systems | Frontend Frameworks: Vue.js Essentials | 6 | 30% |
| Salma Hisham | Intake 5 - ICC | Mansora | Embedded Systems | Frontend Frameworks: Vue.js Essentials | 6 | 30% |
| Wael Sami | Intake 5 - ICC | Mansora | Embedded Systems | Frontend Frameworks: Vue.js Essentials | 6 | 30% |
| Karim Fathy | Intake 5 - ICC | Mansora | Embedded Systems | Frontend Frameworks: Vue.js Essentials | 6 | 60% |
| Mohamed Tamer | Intake 5 - ICC | Mansora | Embedded Systems | Frontend Frameworks: Vue.js Essentials | 6 | 60% |
| Youssef Mostafa | Intake 5 - ICC | Mansora | Embedded Systems | Frontend Frameworks: Vue.js Essentials | 6 | 60% |
| Dalia Ahmed | Intake 1 - ICC | Fayoum | Open Source Applications Development | Frontend Frameworks: Vue.js Essentials | 6 | 20% |
| Mostafa Wael | Intake 1 - ICC | Fayoum | Open Source Applications Development | Frontend Frameworks: Vue.js Essentials | 6 | 20% |
| Amr Khaled | Intake 1 - ICC | Fayoum | Open Source Applications Development | Frontend Frameworks: Vue.js Essentials | 6 | 30% |
| Hany Gamal | Intake 1 - ICC | Fayoum | Open Source Applications Development | Frontend Frameworks: Vue.js Essentials | 6 | 30% |
| Nada Mostafa | Intake 1 - ICC | Fayoum | Open Source Applications Development | Frontend Frameworks: Vue.js Essentials | 6 | 30% |
| Salma Wael | Intake 1 - ICC | Fayoum | Open Source Applications Development | Frontend Frameworks: Vue.js Essentials | 6 | 30% |
| Dalia Sami | Intake 1 - ICC | Fayoum | Open Source Applications Development | Frontend Frameworks: Vue.js Essentials | 6 | 60% |
| Karim Mostafa | Intake 6 - ICC | New Capital | Web & User Interface Development | Database Management with SQL | 2 | 0% |

# Students' Freelance Dashboard



Students' Freelance
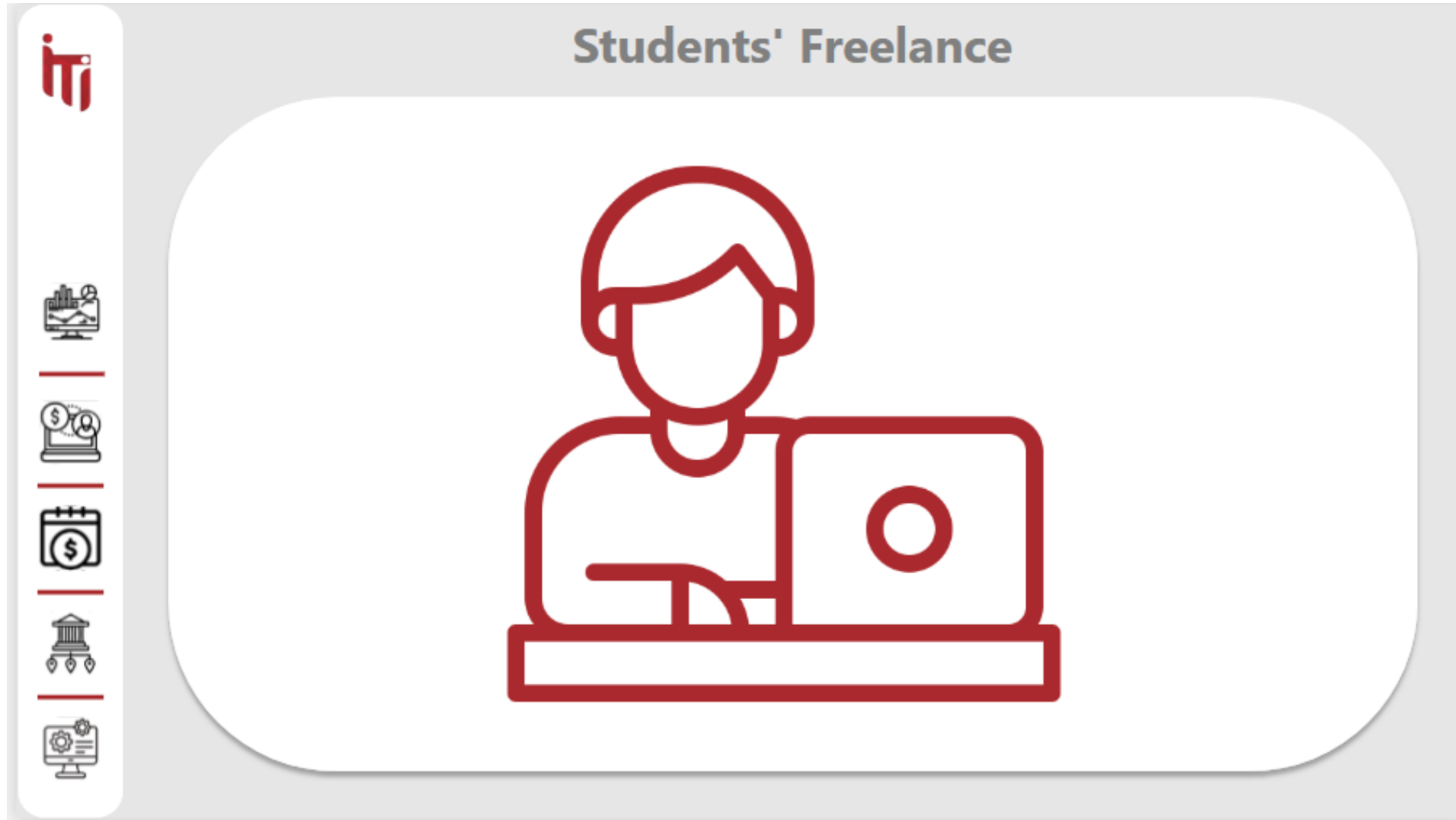
# Students' Freelance Overview



## Students' Freelance Analysis

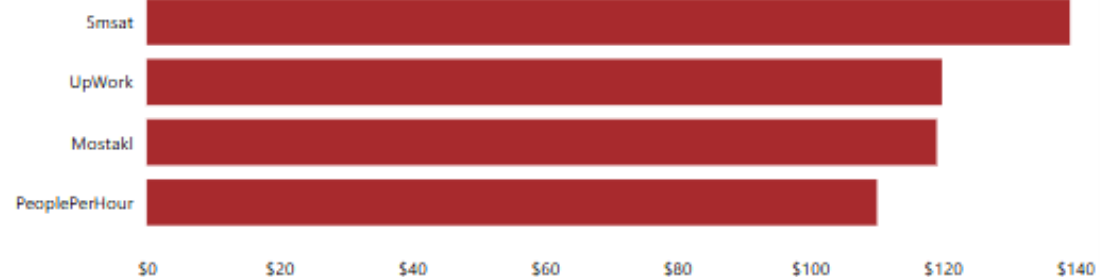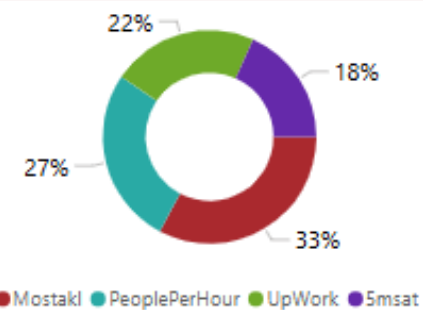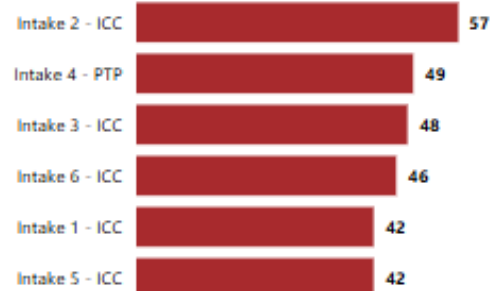| Total No. Of Students | Students With Freelance | Avg Earnings | Freelancing Rate |
|---|---|---|---|
| 338 | 275 | $120.54 | 81.36% |

### Avg Earnings Per Platform

| Platform | |
|---|---|
| Smsat | ~$135 |
| UpWork | ~$115 |
| Mostakl | ~$115 |
| PeoplePerHour | ~$105 |

(x-axis: $0, $20, $40, $60, $80, $100, $120, $140)

### Students Per Platform

- 33% Mostakl
- 27% PeoplePerHour
- 22% UpWork
- 18% 5msat

### No. Of Freelancing By Intake

| Intake | Count |
|---|---|
| Intake 2 - ICC | 57 |
| Intake 4 - PTP | 49 |
| Intake 3 - ICC | 48 |
| Intake 6 - ICC | 46 |
| Intake 1 - ICC | 42 |
| Intake 5 - ICC | 42 |

### No. Of Freelancing By Branch

| Branch | Count |
|---|---|
| New Capital | 50 |
| Fayoum | 46 |
| Smart Village | 46 |
| Mansora | 42 |
| Minya | 36 |
| Cairo Unive... | 35 |
| Sohag | 29 |

### No. Of Freelancing By Track

| Track | Count |
|---|---|
| Geoinformatics | 16 |
| Integrated Software Devel... | 16 |
| Open Source Applications ... | 14 |
| Data Science | 13 |
| Web & User Interface Dev... | 12 |
| Architecture, Engineering a... | 11 |
| FX Dynamics and Simulation | 10 |
| Mobile Applications Devel... | 10 |
| Software Testing & Quality... | 10 |
| 2D Animation and Motion ... | 9 |
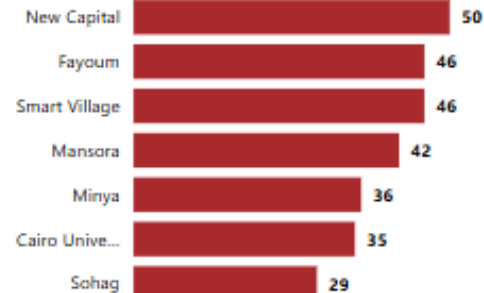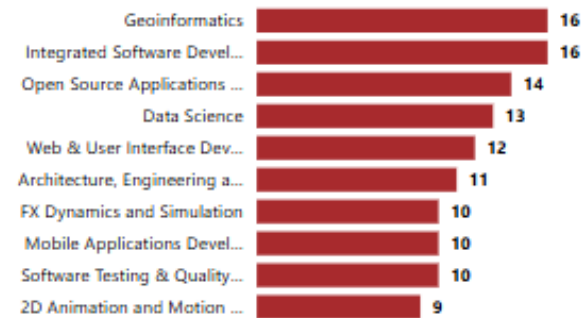
Students' Certifications

# Students' Certifications Overview



## Students' Certifications Analysis

| Total No. Of Certificates | No. Of Certified Students | Avg. Certificates per Student | Certification Rate |
|---|---|---|---|
| 348 | 217 | 2 | 64% |

### Top 5 Certificates Obtained By Students

| Certificate | Value |
|---|---|
| Cloudera Data Platform Generalist Certification | ~19 |
| AWS Certified Data Analytics - Specialty | ~18 |
| CompTIA Network+ | ~17 |
| ertified Software Development Professional (CS... | ~17 |
| Juniper Networks Certified Associate (JNCIA) | ~15 |
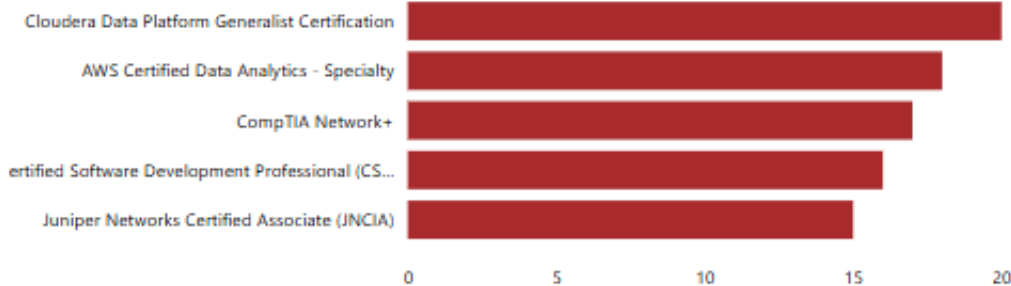
### Certified vs Uncertified Students

- Certified: 64%
- Uncertified: 36%
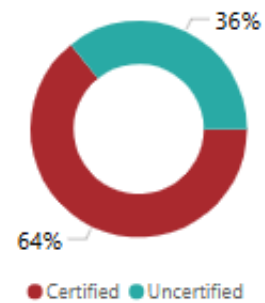
### Certification Rate by Intake

| Intake | Rate |
|---|---|
| Intake 3 - ICC | 12% |
| Intake 1 - ICC | 12% |
| Intake 2 - ICC | 10% |
| Intake 5 - ICC | 10% |
| Intake 6 - ICC | 10% |
| Intake 4 - PTP | 10% |
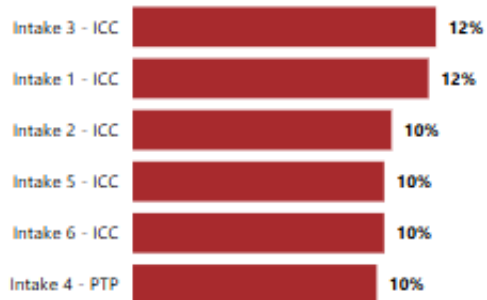
### Certification Rate by Branch

| Branch | Rate |
|---|---|
| New Capital | 12% |
| Mansora | 11% |
| Smart Village | 11% |
| Fayoum | 9% |
| Sohag | 8% |
| Minya | 7% |
| Cairo Unive... | 6% |

### Certification Rate by Track

| Track | Rate |
|---|---|
| Web & User Interfa... | 4% |
| Open Source Appli... | 4% |
| Data Science | 3% |
| Integrated Softwar... | 3% |
| Geoinformatics | 3% |
| Cloud Platform De... | 3% |
| Industrial Automati... | 3% |
| Game Programming | 2% |
| VFX Compositing | 2% |
| 2D Animation and ... | 2% |

# Thank You