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Department of Computer

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CIS 321: Database Concepts & Design Project Report

GROUP NAME: DIGITAL STEPS

Digital Steps

TEAM MEMBERS:

#	Name	ID
1 (Leader)	Norah Alanzi	
2	Nada	
3	Wajood	
4	Miad	
5	Waad A	
6	Renad	
7	Sarah A	

Instructors:

Dr.Thowiba Awad   Dr. Mona Alghamdi   L. Sameerah Albalhareth

Academic year 1445 – 2024

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Difficulties & How Problems were Solved:

During our project, we encountered difficulties in connecting MySQL to NetBeans and integrating all the components seamlessly. However, we were able to overcome these challenges by following a systematic problem-solving approach.

Firstly, we identified the specific issues we were facing in establishing the connection between MySQL and NetBeans. This involved troubleshooting connection errors, ensuring compatibility between the versions of MySQL and NetBeans, and configuring the necessary settings.

To address these difficulties, we sought various resources such as online documentation, forums, and tutorials related to MySQL and NetBeans integration. These resources provided valuable insights and step-by-step instructions on resolving common connection issues.

Additionally, we actively engaged in collaborative problem-solving within the team. By sharing our experiences and knowledge, we were able to identify potential solutions and workarounds for the encountered problems. This collaborative effort fostered a supportive environment where team members could assist each other and contribute their expertise.

Overall, the difficulties we faced in connecting MySQL to NetBeans were resolved through a combination of thorough research, collaboration within the team, and seeking guidance from experienced individuals. These challenges provided us with valuable learning experiences and improved our problem-solving skills, ultimately leading to a successful outcome.

CHECKLIST OF REQUIREMENTS FULFILLED IN THE PROJECT:

REQUIREMENTS		
Keep track of different types of users	In our project, there is 2 types of users' roles: - Admin - User	✓
each entity-type should be stored with different data types.	We have used a variety of data types.	✓
application's database include the following: - Strong and weak entity types. - Relationships of all types - Relationships with total and partial participation. - Entity types' attributes should be from different types	We have implemented the appropriate relation types for our game, which are 1-N relationship and N-M relationship. _____ In our project we have 5 relations in total. Our database relationships have both of types total and partial relationships. Composite datatype is implemented in our database.	✓
application should provide the following database-related functionalities	We used queries will be discussed more details in report	✓
handling all users' errors	We used queries will be discussed more details in report	✓
Allow users to see what they are authorized for only using users' roles/privileges	We used view and in java OOP report we create some interfaces to let admin see user and het all his information will be discussed more details in report	✓

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Were tasks have been distributed equally between members?

In our collaborative approach, we ensure that tasks and responsibilities are distributed equally among team members. This includes the creation of tables, inputting data, executing queries, as well as querying and coding tasks related to the application design. We recognize the importance of a well-rounded development process, particularly in application design, and therefore allocate these responsibilities to different team members. This approach allows for a comprehensive and collaborative effort, ensuring that each team member contributes to the project in a balanced and meaningful manner.

GENERAL COMMENTS:

Overall, the team demonstrated a collaborative and systematic approach to project management and problem-solving. Tasks and responsibilities were distributed equally among team members, ensuring a balanced contribution from everyone involved. The utilization of platforms such as Zoom and Microsoft Teams facilitated effective communication and coordination within the team. Additionally, the use of the website provided a convenient and interactive platform for creating ER diagrams and mapping. The team also exhibited resilience and perseverance in overcoming challenges, such as connecting MySQL to NetBeans, by seeking resources, collaborating within the team, and seeking guidance from mentors and professionals. These efforts resulted in successful outcomes and valuable learning experiences for the team.

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Project title

Digital Steps : A game system

Description

Digital Step game is a program designed to facilitate the learning of the Java programming language in an interactive and engaging manner. The program is structured to cater to users with varying levels of programming experience, starting from beginners, and progressing through intermediate and advanced stages. By covering the basics of programming concepts and the Java language, this program aims to provide a comprehensive learning experience for individuals interested in acquiring or enhancing their Java programming skills.

Scenario

The program starts by asking the user if he/she would like to access as a player or as an admin. Firstly the player part, if it was the first entry to the user, then creating the account process in the program will start by filling in the account requirements correctly (name, age, phone number, email, etc.) after that, the program will ask the users questions to determine whether they have a background experience in programming languages or not, if they don't have, the program will present GUI that explain the basic programming concepts. After that, the program will start asking about the player levels and conduct a level determining quiz if the users do not know their level. After all these questions and creating the account process the player will start playing based on their level (custom view for players) so they can take lessons, answer question, playing the world wide competition and go again to level determining quiz. As result, the player will learn the java programming language through fun and engaging game until they master it.

Secondary, the Admin part will start by logging into their account, there is no creating account option for security reasons. Only the stored admin in data base can log into the program. The admin part will present GUI admin dashboard with buttons that enable them to access the database to display plyers information, create new quiz, delete quiz, display quiz, etc. Also the admin can participate in the worldwide competition to experience the full joy of our game. Lastly, the Digital Steps game provides a global fun game to engage with people around the world whether it was registered in our system as a player or as admins, both can compete to achieve the highest score in the score table.

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Functionalities

1. Player Functionalities

- o **Account Creation**: New players can create an account by providing their personal details such as name, age, phone number, email, etc.
- o **Background Assessment**: The application assesses the player's existing programming knowledge and experience through a series of questions.
- o **Level Determination**: Based on the player's performance in the background assessment, the application determines the appropriate starting level for the player.
- o **Lessons and Quizzes**: Players can access interactive lessons and quizzes designed to teach the fundamentals of Java programming.
- o **Progress Tracking**: The application tracks the player's progress, recording their performance and achievements.
- o **Global Competition**: Players can participate in a worldwide competition, competing against other players to achieve the highest score.

2. Admin Functionalities

- o **Secure Login**: Admins can securely log in to the application using their credentials.
- o **Player Management**: Admins can view and manage player information, including their profiles, progress, and achievements.
- o **Quiz Management**: Admins can create, edit, and delete quizzes used in the application.
- o **Reporting and Analytics**: Admins can access reports and analytics related to player performance, quiz results, and overall application usage.
- o **Participation in Global Competition**: Admins can participate in the worldwide competition, experiencing the game from the player's perspective.
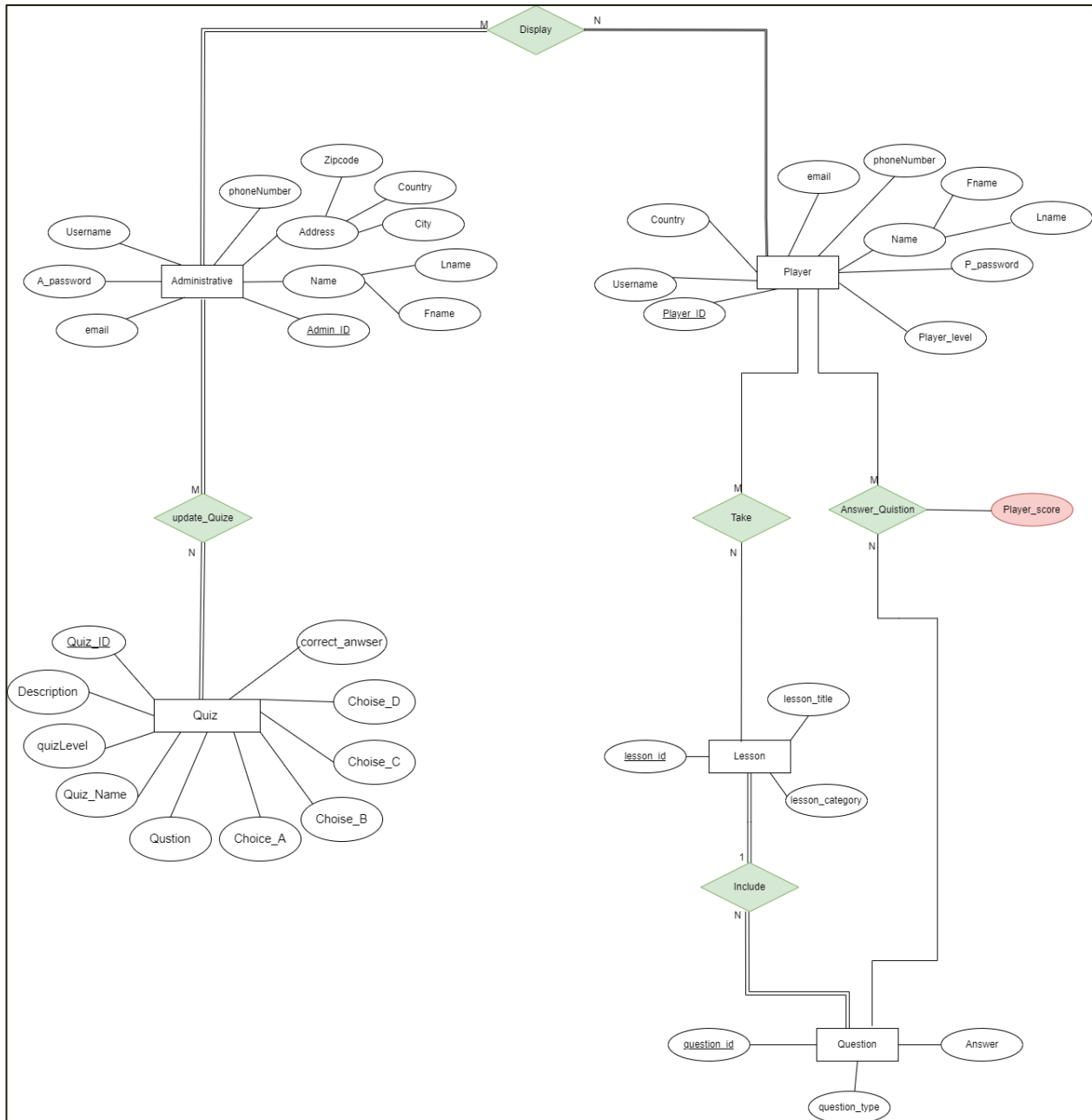
3. General Functionalities

- o **User-Friendly Interface**: The application provides an intuitive and visually appealing user interface for both players and admins.
- o **Error Handling**: The application handles user errors and provides appropriate feedback to ensure a smooth user experience.
- o **Role-Based Access Control**: The application restricts access to certain functionalities based on the user's role (player or admin).
- o **Data Persistence**: The application stores and retrieves data, such as player information, quiz details, and competition results, using a MySQL database.

Through these functionalities, the Digital Steps application aims to provide an engaging and educational experience for players to learn Java programming, while also offering administrative tools for managing the application and its users.

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Constraints

The application has many constraints that help protect and maintain the accuracy of the data stored in it. There are many types of constraints, for example: we have the default type, which in turn sets default values if data is not entered or modified. The other type is check, where the data entry status is checked automatically. The username must be verified, and if it does not exist, a new registration is required. In addition, it must be verified whether the email entered by the user was entered in the required manner. In addition, conditions for entering the passcode (for example, at least one letter and a number must be present), as well as the mobile number. There are also Primary keys (PK), such as the username (PK), user email (PK), etc. Foreign keys (FK), such as player level (FK), number of points (FK), etc. -Each user has: name (NOT NULL), age, email (UNIQUE and NOT NULL), address, passcode (NOT NULL), mobile number (NOT NULL), and account number. -Every admin: has an admin number (PK), as well as a name (NOT NULL), age, email (UNIQUE and NOT NULL), address, passcode (NOT NULL), and mobile number (NOT NULL). -Each player: has a player number (PK) and the number of points he obtained in each level or competition

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Mapping

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Tables

In our project, we have two primary roles: the administrator and the player. The administrator is responsible for creating quizzes, displaying them, and accessing reports on all players. The player, on the other hand, can participate in quizzes and access lessons. To support these functionalities, we have identified the following necessary tables:

- **Create our database**

```
create database Digitalstep;
```

- **Table Administrative**

```
create table Administrative(
Admin_ID numeric (10)  primary key,
Fname  char(10) ,
Lname  char(10) ,
 Country text,
City text,
Zipcode char(5),
A_password varchar(45) not null,
phoneNumber varchar(15),
Username varchar(45) not null UNIQUE,
Email varchar (320) not null
);
```

- **Table Player**

```
CREATE TABLE Player (
    Player_ID INT AUTO_INCREMENT,
    Fname CHAR(10) NOT NULL,
    Lname CHAR(10),
    email VARCHAR(100) NOT NULL,
    username VARCHAR(45) NOT NULL UNIQUE,
    P_password VARCHAR(45) NOT NULL,
    phonenumber VARCHAR(15),
    country TEXT,
    Plyer_Level CHAR(20),
    PRIMARY KEY (Player_ID)
) AUTO_INCREMENT = 100;
```

- **Table Lesson**

```
CREATE TABLE lesson (
  lesson_id INT PRIMARY KEY,
  lesson_title VARCHAR(255),
  lesson_category VARCHAR(255)
);
```

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- **Table Question**

```
CREATE TABLE Question (
    question_id NUMERIC(10) PRIMARY KEY,
    question_type VARCHAR(30),
    Answer char(30) not null,
    lesson_id INT NOT NULL,
    FOREIGN KEY (lesson_id) REFERENCES lesson(lesson_id));
```

- **Table Quiz**

```
CREATE TABLE Quiz (
    Quiz_ID INT PRIMARY KEY ,
    Quiz_Name VARCHAR(255) NOT NULL,
    Quiz_Description VARCHAR(300),
    Question_Text VARCHAR(100),
    Quiz_Level VARCHAR(20),
    Choice_A VARCHAR(255),
    Choice_B VARCHAR(255),
    Choice_C VARCHAR(255),
    Choice_D VARCHAR(255),
    Correct_Answer VARCHAR(255));
```

- **Table Administrative_Display_player**

```
create table Administrative_Display_player(
Admin_ID numeric (10) ,
Player_ID INT NOT NULL,
primary key(Admin_ID,Player_ID)
);
alter table Administrative_Display_player add foreign key (Admin_ID) references
Administrative (Admin_ID);
alter table Administrative_Display_player add foreign key (Player_ID)
references Player (Player_ID);
```

- **Table player_anwser_qustion**

```
create table player_anwser_qustion(
question_id NUMERIC(10) ,
Player_ID INT NOT NULL,
Player_score int,
primary key(question_id,Player_ID)
);
alter table player_anwser_qustion add foreign key (question_id) references
Question (question_id);
alter table player_anwser_qustion add foreign key (Player_ID) references Player
(Player_ID);
```

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- **Table player_Take_lesson**

```
create table player_Take_lesson(
lesson_id INT NOT NULL ,
Player_ID INT NOT NULL,

primary key(lesson_id,Player_ID)
);
alter table player_Take_lesson add foreign key (lesson_id) references lesson
      (lesson_id);
alter table player_Take_lesson add foreign key (Player_ID) references Player
      (Player_ID);
```

- **Table Administrative_Update_Quize**

```
create table Administrative_Update_Quize(
Quiz_ID int ,
Admin_ID numeric (10) ,
primary key(Quiz_ID,Admin_ID)
);
alter table Administrative_Update_Quize add foreign key (Quiz_ID) references
      Quiz (Quiz_ID);
alter table Administrative_Update_Quize add foreign key (Admin_ID) references
      Administrative (Admin_ID);
```

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Queries

INSERT IN TABLES

- **Table Administrative**

```
insert into Administrative values
(2220000572,'Norah','Alanzi','Saudi Arabia', 'Dammam', '12345',
    'No1222$#8935','0551732744', 'NorahAlanzi.51','22200000572@iau.edu.sa'),
(2220000552 , 'Nada' ,'Alrashidi',' Saudi Arabia', 'Dammam', '33312',
    '1115811Nn', '0543559646', 'nada134', '2220000552@iau.edu.sa'),
(2220001292,'Wajood','Khalid',' Saudi Arabia', 'Jubail', 13067, 'WKwk1234&',
    '0540326426', 'WajoodK','2220001292@iau.edu.sa'),
(2220001372 , 'Waad' ,'Alshammari',' Saudi
    Arabia','Jubail',35817,'6676Ww','0566989760','Waad5120','2220001372@iau.
    edu.sa'),
(2230040060 , 'Sarah' ,'Alhethily',' Saudi Arabia', 'Khobar',
    34741,'Sa653','05646666514','sarah44', '2230040060@iau.edu.sa'),
(2220001911,'Miad','Alosaimi','Saudi Arabia' , 'Jubail' ,'57689' ,'Mia5678$'
    ,'0545901215' ,'Miah67','2220001911@iau.edu.sa'),
(2220003572 , 'Renad' ,'Alhktani',' Saudi Arabia','Khobar',34767,'rr761','
    0559795009','renad0','2220003572@iau.edu.sa');
```

- **Output:**

114 ● SELECT * FROM Administrative;

Admin_ID	Fname	Lname	Country	City	Zipcode	A_password	phoneNumber	Username	Email
222008572	Norah	Alanzi	Saudi Arabia	Dammam	12345	No1222$#8935	0551732744	NorahAlanzi.513	22200000572@iau.edu.sa
2220000552	Nada	Alrashidi	Saudi Arabia	Dammam	33312	1115811Nn	0543559646	nada1343	2220000552@iau.edu.sa
2220001292	Wajood	Khalid	Saudi Arabia	Jubail	13067	WKwk1234&	0540326426	WajoodK3	2220001292@iau.edu.sa
2220001372	Waad	Alshammari	Saudi Arabia	Jubail	35817	6676Ww	0566989760	Waad51230	2220001372@iau.edu.sa
2220001911	Miad	Alosaimi	Saudi Arabia	Jubail	57689	Mia5678$	0545901215	Miah673	2220001911@iau.edu.sa
2220003572	Renad	Alhktani	Saudi Arabia	Khobar	34767	rr761	0559795009	renad03	2220003572@iau.edu.sa
2230040060	Sarah	Alhethily	Saudi Arabia	Khobar	34741	Sa653	05646666514	sarah443	2230040060@iau.edu.sa
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

Administrative 7 ✕

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- **Table Player**

```
insert into player values
(101,'Maha','Mohamed','Maha@gmail.com','maha28','maha2003$','0540324624','Saudi
    Arabia','Beginner'),(102,'Rash','Alghmdi','rash45676@gmail.com','rashz_44','Ras
    ha567@$%','0551732677','Saudi Arabia',null),
(103,'Ghaida','AlQahtani','GhKhtani.66@gmail.com','Ghaidoo_566','khtanighid456&','056
    7600000','Saudi
    Arabia','intermediate'),(104,'Shima','Alsaab','Shooshh.567@gmail.com','shosh_45
    6','shoshso123456','0500067892','Saudi
    Arabia','Advanced'),(105,'Ebhar','Alghmdi','Ebhar.679@gmail.com','Bobo_ty56','E
    bhar5768#','0551230876','SaudiArabia',null),(106,'Lama','Khalid','lama.78@gmail
    .com','lmoosh_345','6lmlml875$','0567890001','Kwait','Beginner'),(107,'Yousef',
    'Almarri', 'yousef123@gmail.com', 'yousef_m4', 'yousef253', '0551122334',
    'Saudi Arabia', 'Intermediate'),(108,'Aisha', 'AlHashemi',
    'aisha.hash@gmail.com', 'Ayosh_67', 'Ayosh_455$6', '0509988776', 'United Arab
    Emirates', 'Beginner'),(109,'Ahmad', 'Alghmdi', 'ahmad.saud@gmail.com',
    'ahmad_22', 'Ahmad7123423', '0566655778', 'Saudi Arabia',
    'Advanced'),(110,'Fatima', 'AlAli', 'fatima.a@gmail.com', 'fati_al',
    'Ftoomh67%_67', '0544433221', 'Bahrain', 'Intermediate'),(111,'Mohammed',
    'AlQahtani', 'm.alqahtani@gmail.com', 'mohd_85', 'Mohd@2023', '0501122334',
    'Saudi Arabia', 'Beginner'),(112,'Sara', 'Almazrooei', 'sara.maz@gmail.com',
    'sara_99', 'Sara#123789', '0557788990', 'United Arab Emirates',
    'Advanced'),(113,'Nasser', 'AlShamsi', 'nasser.123@gmail.com', 'nasser123',
    'Nasser456', '0564433221', 'Oman', 'Beginner'),(114,'Hessa', 'AlMansoori',
    'hessa.mansoori@gmail.com', 'hessa_22', 'Hessa@33789', '0543322110', 'Qatar',
    'Intermediate'),(115,'Abdullah', 'AlAnzi', 'abdullah.ar@gmail.com',
    'abdullah_99', 'Abdullah@3321', '0509988776', 'Saudi Arabia',
    'Advanced'),(116,'Noor', 'AlHammadi', 'noor.hammadi@gmail.com', 'noor_23',
    'Noor12234', '0556655443', 'United Arab Emirates', 'Intermediate'),(117,'Ali',
    'AlFarsi', 'ali.farsi@gmail.com', 'ali_123', 'Ali@456', '0567788990', 'Saudi
    Arabia','Intermediate'),(118,'Layla', 'AlQasimi', 'layla.qasimi@gmail.com',
    'layla_22', 'LaylaQ789', '0504433221', 'United Arab Emirates',
    'Beginner'),(119,'Hassan', 'AlMulla', 'hassan.mulla@gmail.com', 'hassan_99',
    'Hassan#321', '0549988776', 'Bahrain', 'Advanced'),(120,'Shikhah', 'AlHajri',
    'Shikhah.hajri@gmail.com', 'Shosho_56', 'Sh3345#sf@', '0551122334', 'Saudi
    Arabia', 'Advanced'),(121,'Khalid', 'AlKuwari', 'khalid.kuwari@gmail.com',
    '123456HKH', 'Khalid@2023', '0566655778', 'Qatar', 'Intermediate');
```

- **Output:**

Player_ID	Fname	Lname	email	username	P_password	phonenumber	country	Plyer_Level
101	Maha	Mohamed	Maha@gmail.com	maha28	maha2003$	0540324624	Saudi Arabia	Beginner
102	Rash	Alghmdi	rash45676@gmail.com	rashz_44	Rasha567@$%	0551732677	Saudi Arabia	NULL
103	Ghaida	AlQahtani	GhKhtani.66@gmail.com	Ghaidoo_566	khtanighid456&	0567600000	Saudi Arabia	intermediate
104	Shima	Alsaab	Shooshh.567@gmail.com	shosh_456	shoshso123456	0500067892	Saudi Arabia	Advanced
105	Ebhar	Alghmdi	Ebhar.679@gmail.com	Bobo_ty56	Ebhar5768#	0551230876	Saudi Arabia	NULL
106	Lama	Khalid	lama.78@gmail.com	lmoosh_345	6lmlml875$	0567890001	Kwait	Beginner
107	Yousef	Almarri	yousef123@gmail.com	yousef_m4	yousef253	0551122334	Saudi Arabia	Intermediate
108	Aisha	AlHashemi	aisha.hash@gmail.com	Ayosh_67	Ayosh_455$6	0509988776	United Arab Emirates	Beginner
109	Ahmad	Alghmdi	ahmad.saud@gmail.com	ahmad_22	Ahmad7123423	0566655778	Saudi Arabia	Advanced
110	Fatima	AlAli	fatima.a@gmail.com	fati_al	Ftoomh67%_67	0544433221	Bahrain	Intermediate
111	Moha...	AlQahtani	m.alqahtani@gmail.com	mohd_85	Mohd@2023	0501122334	Saudi Arabia	Beginner
112	Sara	Almazrooei	sara.maz@gmail.com	sara_99	Sara#123789	0557788990	United Arab Emirates	Advanced
113	Nasser	AlShamsi	nasser.123@gmail.com	nasser123	Nasser456	0564433221	Oman	Beginner
114	Hessa	AlMansoori	hessa.mansoori@gmail....	hessa_22	Hessa@33789	0543322110	Qatar	Intermediate
115	Abdullah	AlAnzi	abdullah.ar@gmail.com	abdullah_99	Abdullah@3321	0509988776	Saudi Arabia	Advanced
116	Noor	AlHammadi	noor.hammadi@gmail.com	noor_23	Noor12234	0556655443	United Arab Emirates	Intermediate
117	Ali	AlFarsi	ali.farsi@gmail.com	ali_123	Ali@456	0567788990	Saudi Arabia	Intermediate
118	Layla	AlQasimi	layla.qasimi@gmail.com	layla_22	LaylaQ789	0504433221	United Arab Emirates	Beginner
119	Hassan	AlMulla	hassan.mulla@gmail.com	hassan_99	Hassan#321	0549988776	Bahrain	Advanced
120	Shikhah	AlHajri	Shikhah.hajri@gmail.com	Shosho_56	Sh3345#sf@	0551122334	Saudi Arabia	Advanced
121	Khalid	AlKuwari	khalid.kuwari@gmail.com	123456HKH	Khalid@2023	0566655778	Qatar	Intermediate
NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL

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- **Table Quiz**

```
INSERT INTO Quiz
VALUES (01, 'OOP in Java', 'Test your understanding of Java OOP concepts.',
    'Advance', 'Which of the following is NOT a principle of OOP?',
    'Inheritance', 'Encapsulation', 'Polymorphism', 'Abstraction',
    'Choice_D'),
(02, 'Exception Handling in Java', 'Check your knowledge of Java exception
    handling.', 'Intermediate', 'What is the purpose of the "finally" block?',
    'Handle', 'Execute', 'Terminate', 'Catch', 'Choice_B'),
(03, 'Java Collections Framework', 'Test your understanding of Java
    collections.', 'Intermediate', 'Which collection class provides a
    resizable array?', 'HashSet', 'HashMap', 'ArrayList', 'LinkedList',
    'Choice_C'),
(04, 'Java Multithreading', 'Check your knowledge of Java multithreading
    concepts.', 'Advanced', 'What is a deadlock in Java multithreading?',
    'Wait', 'Access', 'Terminate', 'Enter', 'Choice_A'),
(05, 'Java I/O', 'Test your understanding of Java input/output operations.',
    'Intermediate', 'Which class in Java reads input from the keyboard?',
    'Scanner', 'BufferedReader', 'InputStream', 'FileReader', 'Choice_A'),
(06, 'Java Generics', 'Check your knowledge of Java generic programming.',
    'Advanced', 'What is the purpose of using generics?', 'Performance', 'Type
    Safety', 'Memory Usage', 'Code Syntax', 'Choice_B'),
(07, 'Java Lambda Expressions', 'Test your understanding of Java lambda
    expressions.', 'Intermediate', 'Which functional interface takes two
    arguments and returns a result?', 'Runnable', 'Consumer', 'Predicate',
    'BiFunction', 'Choice_D'),
(08, 'Java Reflection', 'Check your knowledge of Java reflection API.',
    'Advanced', 'Which class represents a class or interface in Java?',
    'Field', 'Method', 'Constructor', 'Class', 'Choice_D'),
(09, 'Java Serialization', 'Test your understanding of Java object
    serialization.', 'Intermediate', 'Which interface should be implemented
    for object serialization in Java?', 'Serializable', 'Cloneable',
    'Externalizable', 'Comparable', 'Choice_A');
```

- **Output:**

Quiz_ID	Quiz_Name	DescriptionQ	quizLevel	Qustion	Choice_A	Choice
1	OOP in Java	Test your understanding of Java OOP concepts.	Advance	Which of the following is NOT a principle of OOP?	Inheritance	Encapsu
2	Exception Handling in Java	Check your knowledge of Java exception handli...	Intermediate	What is the purpose of the "finally" block?	Handle	Execute
3	Java Collections Framework	Test your understanding of Java collections.	Intermediate	Which collection class provides a resizable array?	HashSet	HashMa
4	Java Multithreading	Check your knowledge of Java multithreading c...	Advanced	What is a deadlock in Java multithreading?	Wait	Access
5	Java I/O	Test your understanding of Java input/output o...	Intermediate	Which class in Java reads input from the keybo...	Scanner	Buffere
6	Java Generics	Check your knowledge of Java generic program...	Advanced	What is the purpose of using generics?	Performance	Type Sa
7	Java Lambda Expressions	Test your understanding of Java lambda expres...	Intermediate	Which functional interface takes two arguments...	Runnable	Consum
8	Java Reflection	Check your knowledge of Java reflection API.	Advanced	Which class represents a class or interface in Ja...	Field	Method
9	Java Serialization	Test your understanding of Java object serializ...	Intermediate	Which interface should be implemented for obje...	Serializable	Cloneab

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- **Table Lesson**

```
insert into lesson
values(1101,'Lesson1','Beginner'), (1102,'Lesson2','Beginner'),
(1103,'Lesson3','Beginner'), (1104,'Lesson4','Beginner'),
(1105,'Lesson5','Beginner'), (1106,'Lesson6','Beginner'),
(1107,'Lesson7','Beginner'), (1108,'Lesson8','Beginner'),
(1109,'Lesson9','Beginner'), (1110,'Lesson10','Beginner'),
(1111,'Lesson11','Beginner'),(1112,'Lesson12','Beginner'),
(1113,'Lesson13','Beginner'),(1114,'Lesson14','Beginner'),
(1115,'Lesson15','Beginner'),(1116,'Lesson16','intermediate'),
(1117,'Lesson17','intermediate'),(1118,'Lesson18','intermediate'),
(1119,'Lesson19','intermediate'),(1120,'Lesson20','intermediate'),
(1121,'Lesson21','intermediate'),(1122,'Lesson22','intermediate'),
(1123,'Lesson23','intermediate'),(1124,'Lesson24','intermediate'),
(1125,'Lesson25','intermediate'),(1126,'Lesson26','intermediate'),
(1127,'Lesson27','intermediate'),(1128,'Lesson28','intermediate'),
(1129,'Lesson29','intermediate'), (1130,'Lesson30','intermediate'),
(1131,'Lesson31','Advanced'),(1132,'Lesson32','Advanced'),
(1133,'Lesson34','Advanced'), (1134,'Lesson35','Advanced'),
(1135,'Lesson36','Advanced'),(1136,'Lesson37','Advanced'),
(1137,'Lesson38','Advanced'), (1138,'Lesson39','Advanced'),
(1139,'Lesson40','Advanced'),(1140,'Lesson41','Advanced'),
(1141,'Lesson42','Advanced'), (1142,'Lesson43','Advanced'),
(1143,'Lesson44','Advanced'),(1144,'Lesson45','Advanced'),
(11345,'Lesson46','Advanced'),(1146,'Lesson47','Advanced'),
(1148,'Lesson48','Advanced'),(1149,'Lesson49','Advanced'),
(1150,'Lesson50','Advanced');
```

- **Output:**

lesson_id	lesson_title	lesson_category
1101	Lesson1	Beginner
1102	Lesson2	Beginner
1103	Lesson3	Beginner
1104	Lesson4	Beginner
1105	Lesson5	Beginner
1106	Lesson6	Beginner
1107	Lesson7	Beginner
1108	Lesson8	Beginner
1109	Lesson9	Beginner
1110	Lesson10	Beginner

lesson 3 ×

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- **Table Question**

```
INSERT INTO Question
VALUES(101,'Q1_forbeginner','C',1101),(102,'Q2_for
    beginner','B',1102),(103,'Q3_for beginner','A',1103),
(104,'Q4_for beginner','A',1104),(105,'Q5_for
    beginner','D',1105),(106,'Q6_for beginner','C',1106),
(107,'Q7_for beginner','A',1107),(108,'Q8_for
    beginner','C',1108),(109,'Q9_for beginner','A',1109),
(110,'Q10_for beginner','A',1110),(201,'Q1_for
    intermediate','A',1116),(202,'Q2_for intermediate','C',1117),
(203,'Q3_for intermediate','A',1118),(204,'Q4_for
    intermediate','A',1119),(205,'Q5_for intermediate','B',1120),
(206,'Q6_for intermediate','B',1121),(207,'Q7_for
    intermediate','B',1122),(208,'Q8_for intermediate','C',1123),
(209,'Q9_for intermediate','A',1124),(210,'Q10_for
    intermediate','B',1125),(301,'Q1_for advanced','A',1131),
(302,'Q2_for advanced','B',1132),(303,'Q2_for
    advanced','A',1133),(304,'Q4_for advanced','C',1134),
(305,'Q5_for advanced','C',1135),(306,'Q6_for
    advanced','B',1136),(307,'Q7_for advanced','A',1137),
(308,'Q8_for advanced','C',1138),(309,'Q9_for
    advanced','B',1139),(310,'Q10_for advanced','C',1140);
```

- **Output:**

question_id	question_type	Answer	lesson_id
101	Q1_for beginner	C	1101
102	Q2_for beginner	B	1102
103	Q3_for beginner	A	1103
104	Q4_for beginner	A	1104
105	Q5_for beginner	D	1105
106	Q6_for beginner	C	1106
107	Q7_for beginner	A	1107
108	Q8_for beginner	C	1108
109	Q9_for beginner	A	1109
110	Q10_for beginner	A	1110
201	Q1_for intermedi...	A	1116
202	Q2_for intermedi...	C	1117
203	Q3_for intermedi...	A	1118
204	Q4_for intermedi...	A	1119
205	Q5_for intermedi...	B	1120
206	Q6_for intermedi...	B	1121
207	Q7_for intermedi...	B	1122
208	Q8_for intermedi...	C	1123
209	Q9_for intermedi...	A	1124
210	Q10_for interme...	B	1125
301	Q1_for advanced	A	1131
302	Q2_for advanced	B	1132
303	Q2_for advanced	A	1133
304	Q4_for advanced	C	1134
305	Q5_for advanced	C	1135
306	Q6_for advanced	B	1136
307	Q7_for advanced	A	1137
308	Q8_for advanced	C	1138
309	Q9_for advanced	B	1139
310	Q10_for advanced	C	1140

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- **Table Administrative_Display_player**

```
INSERT INTO Administrative_Display_player (Admin_ID, Player_ID)
VALUES
(2220000572, 101),(2220000572, 102),(2220000552, 103),(2220001292, 104),
(2220001372, 105),(2230040060, 106),(2220001911, 107),(2220003572, 108),
(2220000572, 109),(2220000552, 110),(2220001292, 111),(2220001372, 112),
(2230040060, 113),(2220001911, 114),(2220003572, 115),(2220000572, 116),
(2220000552, 117),(2220001292, 118),(2220001372, 119),
(2230040060, 120),(2220001911, 121);
```

- **Output:**

Admin_ID	Player_ID
2220000572	101
2220000572	102
2220000552	103
2220001292	104
2220001372	105
2230040060	106
2220001911	107
2220003572	108
2220000572	109
2220000552	110
2220001292	111
2220001372	112
2230040060	113
2220001911	114
2220003572	115
2220000572	116
2220000552	117
2220001292	118

- **player_anwser_qustion**

```
INSERT INTO player_anwser_qustion
VALUES(101, 101,'1'),(102, 106,'0'), (102,102,'0'),(103, 108, '1'),
(104, 111, '1'),(105, 113, '0'), (106, 118,'0'), (201, 103, '1'),
(202, 107, '1'), (203, 110, '1'),(204, 114, '1'), (205, 116,'0'),
(206, 117, '1'), (207, 121, '1'), (301, 104, '1'),(302, 109, '1'),
(303, 112,'1'), (304, 115, '0'), (305, 119, '1'),(306, 120, '1');
```

- **Output:**

question_id	Player_ID	Player_score
101	101	1
102	102	0
102	106	0
103	108	1
104	111	1
105	113	0
106	118	0
201	103	1
202	107	1
203	110	1
204	114	1
205	116	0
206	117	1
207	121	1
301	104	1
302	109	1
303	112	1
304	115	0

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- **player_Take_lesson**

```
#instaed of taking the player ids that in spsific level, the inner join will
enabels me to insert each player according to their level with the matching
lesson level
INSERT INTO player_Take_lesson (lesson_id, Player_ID)
SELECT l.lesson_id, p.Player_ID
FROM Player p
INNER JOIN lesson l ON p.Plyer_Level = l.lesson_category;
```

- **Output:**

lesson_id	Player_ID
1127	103
1128	103
1129	103
1130	103
1131	104
1132	104
1133	104
1134	104
1135	104
1136	104
1137	104
1138	104
1139	104
1140	104
1141	104
1142	104
1143	104
1144	104

- **Administrative_Update_Quize**

```
INSERT INTO Administrative_Update_Quize (Quiz_ID, Admin_ID)
VALUES (01, 2220000572),(01, 2220000552),(01, 2220001292),
(01, 2220003572),(02, 2220000572),(02, 2220000552), (02, 2220001911),
(03, 2220000572),(03, 2220000552), (03, 2220001292),(03, 2220001372),
(03, 2230040060),(05, 2220000572),(05, 2220000552),(05, 2220001292),
(05, 2220001372),(05, 2230040060),(05, 2220001911),(05, 2220003572),
(06, 2220000572),(06,2220000552),(07, 2220000572),(07, 2220000552),
(07, 2220001292),(07, 2230040060),(08, 2220001911),(09, 2220001292);
```
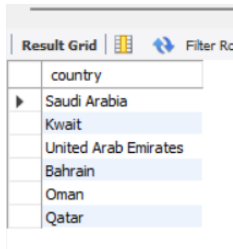
- **Output:**

Quiz_ID	Admin_ID
2	2220000572
3	2220000572
5	2220000572
6	2220000572
7	2220000572
1	2220001292
3	2220001292
5	2220001292
7	2220001292
9	2220001292
3	2220001372
5	2220001372
2	2220001911
5	2220001911
8	2220001911
1	2220003572
5	2220003572
3	2230040060

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- **DISTINCT**

```
SELECT DISTINCT country
FROM Player
WHERE Plyer_Level IS NOT NULL;
```

- **Output:**
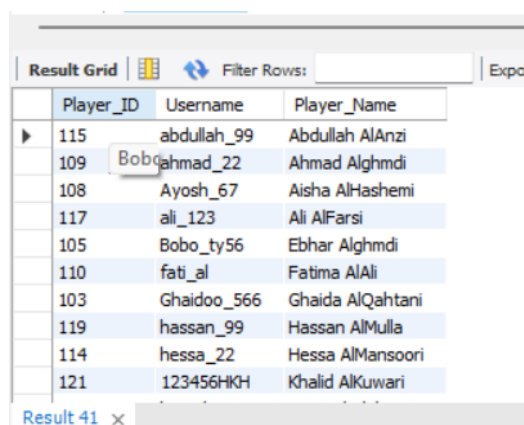
country
Saudi Arabia
Kwait
United Arab Emirates
Bahrain
Oman
Qatar

- **Order by**

```
SELECT
  p.Player_ID,
  p.Username,
  CONCAT(p.Fname, ' ', p.Lname) AS Player_Name
FROM Player p
WHERE EXISTS (
  SELECT 1
  FROM Question q
  WHERE q.question_type = 'Q1_for beginner'
    AND NOT EXISTS (
      SELECT 1
      FROM player_anwser_qustion paq
      WHERE paq.Player_ID = p.Player_ID
        AND paq.question_id = q.question_id
    )
)
ORDER BY p.Fname ASC;
```

- **Output:**

Player_ID	Username	Player_Name
115	abdullah_99	Abdullah AlAnzi
109	ahmad_22	Ahmad Alghmdi
108	Ayosh_67	Aisha AlHashemi
117	ali_123	Ali AlFarsi
105	Bobo_ty56	Ebhar Alghmdi
110	fati_al	Fatima AlAli
103	Ghaidoo_566	Ghaida AlQahtani
119	hassan_99	Hassan AlMulla
114	hessa_22	Hessa AlMansoori
121	123456HKH	Khalid AlKuwari

Result 41

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- **Find players in specific Information**

  ❖ **F.1**

```
SELECT Fname, Lname
FROM Player
WHERE Plyer_Level = 'intermediate' AND username LIKE 'Gha%';
```

- **Output:**

Fname	Lname
Ghaida	Alkhtani

  ❖ **F.2**

```
SELECT Fname, Lname
FROM Player
WHERE Plyer_Level = 'Advanced' AND username LIKE 'sh%';
```

- **Output:**

Fname	Lname
Shima	Alsaab

  ❖ **F.3**

```
SELECT DISTINCT P.Fname, P.Lname, L.lesson_category
FROM Player P
JOIN player_Take_lesson PT ON P.Player_ID = PT.Player_ID
JOIN lesson L ON PT.lesson_id = L.lesson_id;
```

Fname	Lname	lesson_category
Maha	Mohamed	Beginner
Ghaida	AlQahtani	intermediate
Shima	Alsaab	Advanced
Lama	Khalid	Beginner
Yousef	Almarri	intermediate
Aisha	AlHashemi	Beginner
Ahmad	Alghmdi	Advanced
Fatima	AlAli	intermediate
Mohammed	AlQahtani	Beginner
Sara	Almazrooei	Advanced
Nasser	AlShamsi	Beginner
Hessa	AlMansoori	intermediate
Abdullah	AlAnzi	Advanced
Noor	AlHammadi	intermediate
Ali	AlFarsi	intermediate
Layla	AlQasimi	Beginner
Hassan	AlMulla	Advanced
Shikhah	AlHajri	Advanced
Khalid	AlKuwari	intermediate

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❖ **F.4**

```
SELECT P.Fname, P.Lname, L.lesson_id
FROM Player P
JOIN player_Take_lesson PT ON P.Player_ID = PT.Player_ID
JOIN lesson L ON PT.lesson_id = L.lesson_id
WHERE L.lesson_category = 'Beginner';
```

Fname	Lname	lesson_id
Maha	Mohamed	1101
Lama	Khalid	1101
Aisha	AlHashemi	1101
Mohammed	AlQahtani	1101
Nasser	AlShamsi	1101
Layla	AlQasimi	1101
Maha	Mohamed	1102
Lama	Khalid	1102
Aisha	AlHashemi	1102
Mohammed	AlQahtani	1102
Nasser	AlShamsi	1102
Layla	AlQasimi	1102
Maha	Mohamed	1103
Lama	Khalid	1103
Aisha	AlHashemi	1103
Mohammed	AlQahtani	1103
Nasser	AlShamsi	1103
Layla	AlQasimi	1103
Maha	Mohamed	1104
Lama	Khalid	1104
Aisha	AlHashemi	1104
Mohammed	AlQahtani	1104
Nasser	AlShamsi	1104

❖ **F.5**

```
SELECT P.Fname, P.Lname, L.lesson_id
FROM Player P
JOIN player_Take_lesson PT ON P.Player_ID = PT.Player_ID
JOIN lesson L ON PT.lesson_id = L.lesson_id
WHERE L.lesson_category = 'Intermediate';
```

Fname	Lname	lesson_id
Ghaida	AlQahtani	1116
Yousef	Almarri	1116
Fatima	AlAli	1116
Hessa	AlMansoori	1116
Noor	AlHammadi	1116
Ali	AlFarsi	1116
Khalid	AlKuwari	1116
Ghaida	AlQahtani	1117
Yousef	Almarri	1117
Fatima	AlAli	1117
Hessa	AlMansoori	1117
Noor	AlHammadi	1117
Ali	AlFarsi	1117
Khalid	AlKuwari	1117
Ghaida	AlQahtani	1118
Yousef	Almarri	1118
Fatima	AlAli	1118
Hessa	AlMansoori	1118
Noor	AlHammadi	1118
Ali	AlFarsi	1118
Khalid	AlKuwari	1118
Ghaida	AlQahtani	1119
Yousef	Almarri	1119
Fatima	AlAli	1119
Hessa	AlMansoori	1119
Noor	AlHammadi	1119
Ali	AlFarsi	1119
Khalid	AlKuwari	1119
Ghaida	AlQahtani	1120
Yousef	Almarri	1120

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❖ **F.6**

```
SELECT P.Fname, P.Lname, L.lesson_id
FROM Player P
JOIN player_Take_lesson PT ON P.Player_ID = PT.Player_ID
JOIN lesson L ON PT.lesson_id = L.lesson_id
WHERE L.lesson_category = 'Advanced';
```

Fname	Lname	lesson_id
Shima	Alsaab	1131
Ahmad	Alghmdi	1131
Sara	Almazrooei	1131
Abdullah	AlAnzi	1131
Hassan	AlMulla	1131
Shikhah	AlHajri	1131
Shima	Alsaab	1132
Ahmad	Alghmdi	1132
Sara	Almazrooei	1132
Abdullah	AlAnzi	1132
Hassan	AlMulla	1132
Shikhah	AlHajri	1132
Shima	Alsaab	1133
Ahmad	Alghmdi	1133
Sara	Almazrooei	1133
Abdullah	AlAnzi	1133
Hassan	AlMulla	1133
Shikhah	AlHajri	1133
Shima	Alsaab	1134
Ahmad	Alghmdi	1134
Sara	Almazrooei	1134
Abdullah	AlAnzi	1134
Hassan	AlMulla	1134
Shikhah	AlHajri	1134
Shima	Alsaab	1135
Ahmad	Alghmdi	1135
Sara	Almazrooei	1135
Abdullah	AlAnzi	1135
Hassan	AlMulla	1135
Shikhah	AlHajri	1135

❖ **F.7**

```
SELECT lesson_category, COUNT(*) AS lesson_count
FROM lesson
GROUP BY lesson_category;
```

lesson_category	lesson_count
Beginner	15
intermediate	15
Advanced	19

❖ **F.8**

```
SELECT P.Fname, P.Lname
FROM Player P
INNER JOIN player_Take_Lesson PTL ON P.Player_ID = PTL.Player_ID
WHERE PTL.lesson_id = 1150;
```

Fname	Lname
Shima	Alsaab
Ahmad	Alghmdi
Sara	Almazrooei
Abdullah	AlAnzi
Hassan	AlMulla
Shikhah	AlHajri

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❖ F.9

```sql
SELECT P.Fname, P.Lname
FROM Player P
INNER JOIN player_Take_Lesson PTL ON P.Player_ID = PTL.Player_ID
WHERE PTL.lesson_id = 1101;
```

Fname	Lname
Maha	Mohamed
Lama	Khalid
Aisha	AlHashemi
Mohammed	AlQahtani
Nasser	AlShamsi
Layla	AlQasimi

❖ F.10

```sql
SELECT Player_ID, Fname, Lname,
  CASE WHEN Player_ID IN (SELECT Player_ID FROM player_Take_lesson) THEN
'Assigned to lesson'
       ELSE 'No Lessons Taken'
  END AS Status
FROM Player;
```

- **Output**

Player_ID	Fname	Lname	Status
101	Maha	Mohamed	Assigned to lesson
102	Rash	Alghmdi	No Lessons Taken
103	Ghaida	AlQahtani	Assigned to lesson
104	Shima	Alsaab	Assigned to lesson
105	Ebhar	Alghmdi	No Lessons Taken
106	Lama	Khalid	Assigned to lesson
107	Yousef	Almarri	Assigned to lesson
108	Aisha	AlHashemi	Assigned to lesson
109	Ahmad	Alghmdi	Assigned to lesson
110	Fatima	AlAli	Assigned to lesson
111	Moha...	AlQahtani	Assigned to lesson
112	Sara	Almazrooei	Assigned to lesson

❖ F.11

```sql
SELECT Player.Player_ID, Player.Fname, Player.Lname, 'No Lessons' AS Status
FROM Player
WHERE Player.Player_ID NOT IN (
  SELECT Player_ID
  FROM player_Take_lesson
);
```

- **Output**

Player_ID	Fname	Lname	Status
102	Rash	Alghmdi	No Lessons
105	Ebhar	Alghmdi	No Lessons

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- **Functions**

```
DELIMITER //
CREATE FUNCTION CalculateAverageScore(player_id INT)
RETURNS VARCHAR(100)
DETERMINISTIC
READS SQL DATA
BEGIN
    DECLARE average_score DECIMAL(5,2);

    SELECT
        AVG(CAST(paq.Player_score AS DECIMAL(5,2))) AS Average_Score
    INTO average_score
    FROM player_anwser_qustion paq
    WHERE paq.Player_ID = player_id;

    RETURN CONCAT('Player ID: ', player_id, ', Average Score: ',
CAST(average_score AS CHAR(10)));
END //
DELIMITER ;
```

- **Example calling :**

```
SELECT CalculateAverageScore(101);
```

CalculateAverageScore(101)
Player ID: 101, Average Score: 1.00

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- **View for the function :**

```
CREATE VIEW PlayerAverageScore AS
SELECT Player_ID, CalculateAverageScore(Player_ID) AS AverageScore
FROM Player;
```

- **Example calling :**

```
SELECT CalculateAverageScore(player_id) FROM Question;
```

- **Output:**

Player_ID	AverageScore
121	Player ID: 121, Average Score: 1.00
115	Player ID: 115, Average Score: 0.00
109	Player ID: 109, Average Score: 1.00
117	Player ID: 117, Average Score: 1.00
108	Player ID: 108, Average Score: 1.00
105	NULL
110	Player ID: 110, Average Score: 1.00
103	Player ID: 103, Average Score: 1.00
119	Player ID: 119, Average Score: 1.00
114	Player ID: 114, Average Score: 1.00
118	Player ID: 118, Average Score: 0.00
106	Player ID: 106, Average Score: 0.00
101	Player ID: 101, Average Score: 1.00
111	Player ID: 111, Average Score: 1.00
113	Player ID: 113, Average Score: 0.00
116	Player ID: 116, Average Score: 0.00
102	Player ID: 102, Average Score: 0.00
112	Player ID: 112, Average Score: 1.00
104	Player ID: 104, Average Score: 1.00
120	Player ID: 120, Average Score: 1.00
107	Player ID: 107, Average Score: 1.00

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1 Nested query

❖ 1.1

```
SELECT p.Fname, p.Lname
FROM Player As p
WHERE NOT EXISTS (
    SELECT *
    FROM lesson As l
    WHERE l.lesson_category = 'Beginner'
    AND NOT EXISTS (
        SELECT *
        FROM player_Take_lesson As T
        WHERE T.Player_ID = p.Player_ID
        AND T.lesson_id = l.lesson_id
    )
);
```

- **Output:**

Fname	Lname
Maha	Mohamed
Lama	Khalid
Aisha	AlHashemi
Mohammed	AlQahtani
Nasser	AlShamsi
Layla	AlQasimi

❖ 1.2

```
SELECT Fname , Lname, username, country
FROM Player
WHERE Player_ID IN (
    SELECT Take.Player_ID
    FROM player_Take_lesson Take
    WHERE Take.lesson_id IN (
        SELECT l.lesson_id
        FROM lesson as l
        WHERE l.lesson_category = 'Advanced'
    )
);
```

- **Output:**

Fname	Lname	username	country
Shima	Alsaab	shosh_456	Saudi Arabia
Ahmad	Alghmdi	ahmad_22	Saudi Arabia
Sara	Almazrooei	sara_99	United Arab Emirates
Abdullah	AlAnzi	abdullah_99	Saudi Arabia
Hassan	AlMulla	hassan_99	Bahrain
Shikhah	AlHajri	Shosho_56	Saudi Arabia

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❖ **1.3**

```
SELECT  Fname , Lname, username, country
FROM Player
WHERE Player_ID IN (
    SELECT Take.Player_ID
    FROM player_Take_lesson Take
    WHERE Take.lesson_id IN (
        SELECT l.lesson_id
        FROM lesson as l
        WHERE l.lesson_category = 'intermediate'
    )
);
```

• **Output**

Fname	Lname	username	country
Ghaida	AlQahtani	Ghaidoo_566	Saudi Arabia
Yousef	Almarri	yousef_m4	Saudi Arabia
Fatima	AlAli	fati_al	Bahrain
Hessa	AlMansoori	hessa_22	Qatar
Noor	AlHammadi	noor_23	United Arab Emirates
Ali	AlFarsi	ali_123	Saudi Arabia
Khalid	AlKuwari	123456HKH	Qatar

❖ **1.4**

```
SELECT Fname , Lname, username, country
FROM Player
WHERE Player_ID IN (
    SELECT Take.Player_ID
    FROM player_Take_lesson Take
    WHERE Take.lesson_id IN (
        SELECT l.lesson_id
        FROM lesson as l
        WHERE l.lesson_category = 'Beginner'
    )
);
```

• **Output:**

Fname	Lname	username	country
Maha	Mohamed	maha28	Saudi Arabia
Lama	Khalid	lmoosh_345	Kwait
Aisha	AlHashemi	Ayosh_67	United Arab Emirates
Mohammed	AlQahtani	mohd_85	Saudi Arabia
Nasser	AlShamsi	nasser123	Oman
Layla	AlQasimi	layla_22	United Arab Emirates

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❖ **1.5:**

```
# this query will display the admin id ,first, and last name and plyaer id
,first, and last name whos have been displayed by the Admin from the tabel
admin display Player:

SELECT A.Admin_ID, A.Fname AS Admin_Firstname, a.Lname AS Admin_Lastname,
P.Player_ID, P.Fname AS Player_FirstName, P.Lname AS Player_LastName
FROM Administrative as A
JOIN Administrative_Display_player as Display ON A.Admin_ID = Display.Admin_ID
JOIN Player as P ON Display.Player_ID = P.Player_ID;
```

- **Output:**

Admin_ID	Admin_Firstname	Admin_Lastname	Player_ID	Player_FirstName	Player_LastName
2220000552	Nada	Alrashidi	103	Ghaida	AlQahtani
2220000552	Nada	Alrashidi	110	Fatima	AlAli
2220000552	Nada	Alrashidi	117	Ali	AlFarsi
2220000572	Norah	Alanzi	101	Maha	Mohamed
2220000572	Norah	Alanzi	102	Rash	Alghmdi
2220000572	Norah	Alanzi	109	Ahmad	Alghmdi
2220000572	Norah	Alanzi	116	Noor	AlHammadi
2220001292	Wajood	Khalid	104	Shima	Alsaab
2220001292	Wajood	Khalid	111	Mohammed	AlQahtani
2220001292	Wajood	Khalid	118	Layla	AlQasimi
2220001372	Waad	Alshammari	105	Ebhar	Alghmdi
2220001372	Waad	Alshammari	112	Sara	Almazrooei
2220001372	Waad	Alshammari	119	Hassan	AlMulla
2220001911	Miad	Alosaimi	107	Yousef	Almarri
2220001911	Miad	Alosaimi	114	Hessa	AlMansoori
2220001911	Miad	Alosaimi	121	Khalid	AlKuwari
2220003572	Renad	Alhktani	108	Aisha	AlHashemi
2220003572	Renad	Alhktani	115	Abdullah	AlAnzi
2230040060	Sarah	Alhethily	106	Lama	Khalid

2 Group By

❖ **2.1**

```
SELECT City, COUNT(*) AS Admin_Count
 FROM Administrative
 GROUP BY City;
```

- **Output:**

City	Admin_Count
Dammam	2
Jubail	3
Khobar	2

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❖ **2.2**

```
SELECT Country, COUNT(*) AS Player_Count
 FROM Player
 GROUP BY Country;
```

- **Output:**

Country	Player_Count
Saudi Arabia	11
Kwait	1
United Arab Emirates	4
Bahrain	2
Oman	1
Qatar	2

3 Aggregate functions

❖ **3.1**

```
SELECT COUNT(*) AS Player_Count
FROM Player;
```

- **Output:**

Player_Count
21

❖ **3.2**

```
SELECT COUNT(*) AS Question_Count
FROM Question;
```

- **Output:**

Question_Count
30

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❖ **3.3**

```sql
SELECT COUNT(*) AS Lesson_Count
 FROM lesson;
```

- **Output:**

Lesson_Count
49

❖ **3.4**

```sql
SELECT avg(Player_score) as Player_Score_Avrge
FROM player_anwser_qustion;
```

- **Output:**

Player_Score_Avrge
0.7

❖ **3.5**

```sql
SELECT sum(Player_score) as Player_Score_Sum
FROM player_anwser_qustion;
```

- **Output:**

Player_Score_Sum
14

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4 View

❖ 4.1

```
create view Advanced_level_player as
select Fname , Lname, username, country
from Player
where Plyer_Level='Advanced';
```

- **Output:**

Fname	Lname	username	country
Shima	Alsaab	shosh_456	Saudi Arabia
Ahmad	Alghmdi	ahmad_22	Saudi Arabia
Sara	Almazrooei	sara_99	United Arab Emirates
Abdullah	AlAnzi	abdullah_99	Saudi Arabia
Hassan	AlMulla	hassan_99	Bahrain
Shikhah	AlHajri	Shosho_56	Saudi Arabia

❖ 4.2

```
create view intermediate_level_player as
select Fname , Lname, username, country
from Player
where Plyer_Level='intermediate';
```

- **Output:**

Fname	Lname	username	country
Ghaida	AlQahtani	Ghaidoo_566	Saudi Arabia
Yousef	Almarri	yousef_m4	Saudi Arabia
Fatima	AlAli	fati_al	Bahrain
Hessa	AlMansoori	hessa_22	Qatar
Noor	AlHammadi	noor_23	United Arab Emirates
Ali	AlFarsi	ali_123	Saudi Arabia
Khalid	AlKuwari	123456HKH	Qatar

❖ 4.3

```
create view Beginner_level_player as
select Fname , Lname, username, country
from Player
where Plyer_Level='Beginner';
```

- **Output:**

Fname	Lname	username	country
Maha	Mohamed	maha28	Saudi Arabia
Lama	Khalid	lmoosh_345	Kwait
Aisha	AlHashemi	Ayosh_67	United Arab Emirates
Mohammed	AlQahtani	mohd_85	Saudi Arabia
Nasser	AlShamsi	nasser123	Oman
Layla	AlQasimi	layla_22	United Arab Emirates

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❖ **4.4**

```
CREATE VIEW AdministrativeUpdateQuizView AS
SELECT auq.Quiz_ID, q.Quiz_Name, auq.Admin_ID
FROM Administrative_Update_Quize auq
JOIN Quiz q ON auq.Quiz_ID = q.Quiz_ID
JOIN Administrative a ON auq.Admin_ID = a.Admin_ID;
```

- **Output:**

Quiz_ID	Quiz_Name	Admin_ID
2	Exception Handling in Java	2220001911
5	Java I/O	2220001911
8	Java Reflection	2220001911
1	OOP in Java	2220000552
2	Exception Handling in Java	2220000552
3	Java Collections Framework	2220000552
5	Java I/O	2220000552
6	Java Generics	2220000552
7	Java Lambda Expressions	2220000552
1	OOP in Java	2220000572
2	Exception Handling in Java	2220000572
3	Java Collections Framework	2220000572
5	Java I/O	2220000572
6	Java Generics	2220000572
7	Java Lambda Expressions	2220000572
1	OOP in Java	2220003572

5 Procedure or Function

❖ **5.1**

```
DELIMITER $$
CREATE PROCEDURE Norahcallinginfo()
BEGIN
    SELECT  Username, Email,phoneNumber,Zipcode
    FROM Administrative
    where Admin_ID='2220000572';
END$$
DELIMITER ;

call  Norahcallinginfo();
```

- **Output**

Username	Email	phoneNumber	Zipcode
NorahAlanzi.51	22200000572@iau.edu.sa	0551732744	12345

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❖ **5.2**

```
DELIMITER $$
CREATE PROCEDURE Nadacallinginfo()
BEGIN
    SELECT  Username, Email,phoneNumber,Zipcode
    FROM Administrative
    where Admin_ID='2220000552';
END$$
DELIMITER ;

call Nadacallinginfo();
```

- **Output:**

Username	Email	phoneNumber	Zipcode
nada134	2220000552@iau.edu.sa	0543559646	33312

❖ **5.3**

```
DELIMITER $$
CREATE PROCEDURE Wajoodcallinginfo()
BEGIN
    SELECT  Username, Email,phoneNumber,Zipcode
    FROM Administrative
    where Admin_ID='2220001292';
END$$
DELIMITER ;
call  Wajoodcallinginfo();
```

- **Output:**

Username	Email	phoneNumber	Zipcode
WajoodK	2220001292@iau.edu.sa	0540326426	13067

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6 Trigger

❖ 6.1

```
DELIMITER $$
CREATE TRIGGER check_player_score
before insert on player_anwser_qustion
for each row
BEGIN
    IF NEW.Player_score < 0 OR NEW.Player_score>1 Then
        signal SQLSTATE '45000'
        set MESSAGE_TEXT = 'Player score cannot be negative or greater than 1';
    END IF;
END$$
DELIMITER ;
```

- **Output:**

❌	497 00:04:26	insert into player_anwser_qustion values ('101','101',2)	Error Code: 1644. Player score cannot be negative or greater than 1
❌	498 00:04:33	insert into player_anwser_qustion values ('101','101',-1)	Error Code: 1644. Player score cannot be negative or greater than 1

❖ 6.2

```
Trigger on
DELIMITER //
CREATE TRIGGER restrict_quiz_level
BEFORE INSERT ON Quiz
FOR EACH ROW
BEGIN
    IF NEW.quizLevel NOT IN ('beginner', 'intermediate', 'advanced') THEN
        SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Invalid quiz level';
    END IF;
END //
DELIMITER ;
```

- **Output:**

❌	53 18:18:02	INSERT INTO Quiz (Quiz_ID, Quiz_Name, DescriptionQ, quizLevel, Qustion, Choice_A, Choi...	Error Code: 1644. Invalid quiz level

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7 Not Null

❖ **7.1**

```
Select fname,lname,Plyer_Level
from player
where Plyer_Level is not null;
```

- **Output**

fname	lname	Plyer_Level
Maha	Mohamed	Beginner
Ghaida	AlQahtani	intermediate
Shima	Alsaab	Advanced
Lama	Khalid	Beginner
Yousef	Almarri	Intermediate
Aisha	AlHashemi	Beginner
Ahmad	Alghmdi	Advanced
Fatima	AlAli	Intermediate
Mohammed	AlQahtani	Beginner
Sara	Almazrooei	Advanced
Nasser	AlShamsi	Beginner
Hessa	AlMansoori	Intermediate
Abdullah	AlAnzi	Advanced
Noor	AlHammadi	Intermediate
Ali	AlFarsi	Intermediate
Layla	AlQasimi	Beginner
Hassan	AlMulla	Advanced

8 Is Null

❖ **8.1**

```
Select fname,lname,Plyer_Level
from player
where Plyer_Level is null;
```

- **Output:**

fname	lname	Plyer_Level
Rash	Alghmdi	NULL
Ebhar	Alghmdi	NULL

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9 Index

```
create INDEX indixUsername ON Player(username);
```

Table: player

Columns:

Player_ID	int AI PK
Fname	char(10)
Lname	char(10)
email	varchar(100)
username	varchar(45)
P_password	varchar(45)
phonenumber	varchar(15)
country	text
Plyer_Level	char(20)

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