

Information Systems and Data Modeling – IT1090

**Assignment**

|  |  |
| --- | --- |
| Title: Online Fitness Trainer | |
| Batch Number: 1.1 | Group Number: MB\_01.01\_05 |
| Declaration:  We hold a copy of this assignment that we can produce if the original is lost or damaged.  We hereby certify that no part of this assignment has been copied from any other group’s work or from any other source. No part of this assignment has been written / produced for our group by another person except where such collaboration has been authorized by the subject lecturer/tutor concerned.  Group Members:  A picture containing text, businesscard  Description automatically generated  A picture containing linedrawing  Description automatically generatedIT21020230 Siriwardana S. M. K. S …………………………  signature  A picture containing text, whiteboard  Description automatically generatedIT21022142 Abeysinghe Y. P. P …………………………  signature  IT20607432 Bandara S. P. M. K …………………………  A picture containing text, whiteboard  Description automatically generated signature  IT21010026 Disanayake A. D. M. M. S …………………………  A close up of a bug  Description automatically generated with low confidence signature  IT21013614 Bulathsinhala D. N …………………………  signature  **Submitted on: <26/09/2021>** | |

**Hypothetical Scenario**

Power Fit is an online fitness trainer system which enables the customers to maintain their physical as well as mental fitness via the virtual medium in this pandemic situation.

Well specialized team of trainers and gym instructors are included in this system while they are managed through a panel of administration and an attentive academic staff. Customers are being tracked out via a web interface and details such as weight and height are being especially recognized and stored in a database for the further analysis of the rest of the stakeholders of this system. After the analyzation customers are directed to the most suitable courses, workout plans, nutrition plans to be followed by the academic staff based on the data stored in the database which includes course details, nutritional plan details, work out plan details, feedbacks, and inquiries.

This system has few restrictions on the customers based on the current volume of manageability. A customer cannot enroll to multiple courses at a time while a course can be designed only by a single trainer under the supervision of the leading instructor. And inquiries submitted by the customers can only be handle by a single appointed staff member.

**Requirement Analysis Document**

**Functional Requirements**

1. Guests should be able to register
2. Customers should be able to login
3. Customers should be able to enroll for a course
4. Customers should be able to place inquiries
5. Customers should be able to give feedbacks
6. Customers should be able to make payment online
7. Trainers should be able to register
8. Trainers should be able to login
9. Trainers should be able to design courses
10. Trainers should be able to teach courses
11. Trainers should be able to update courses
12. Staff members should be able to manage courses
13. Staff members should be able to solve inquiries
14. An administrator should be able to manage the user accounts
15. An administrator should be able to create reports
16. An administrator should be able to renew membership

**Non-Functional Requirements**

1. Security – System should handle unauthorized access
2. System should be user friendly and should be accessible to users with low IT knowledge
3. Reliability – System should be accessible at any time and any where
4. Speed – Response time of the system should be lower
5. Size – System size should be in average scale
6. Maintainability – Easy to modify and maintain while system is functioning

**Data Requirements**

1. User

* User ID
* First name
* Last name
* NIC
* Weight
* Height
* DOB
* Mobile Number

1. Courses

* Course ID
* Course name
* Course type

1. Trainer

* Instructor ID
* First name
* Last name
* NIC
* Email
* Mobile Number

1. Staff

* Staff ID
* First name
* Last name
* NIC
* Email
* Mobile Number

1. Dependent

* Name
* Age
* DOB

1. Course Fee

* Course ID
* Course Type
* Payment Method
* Amount
* Payment ID

1. Feedbacks

* Feedback ID
* Feedback Text
* Related Course
* Ratings

1. Inquiry

* Inquiry ID
* Title
* Description

**Entity Relationship Diagram**

**Diagram, schematic

Description automatically generated**

**Schema**

**Diagram

Description automatically generated**

**SQL Query**

(Note : As it was explained in the ISDM tutorial 10, 3rd question we included derived attributes in the schema and did not included it in the database.)

**Create Table**

-----------------------------TRAINER TABLE----------------------------

CREATE TABLE Trainer

(

Trainer\_ID CHAR(10),

NIC VARCHAR(12),

First\_Name VARCHAR(20),

Last\_Name VARCHAR(20),

Email VARCHAR(30),

Mobile\_No CHAR(10),

CONSTRAINT Trainer\_PK PRIMARY KEY (Trainer\_ID)

);

------------------------------STAFF TABLE-----------------------------

CREATE TABLE Staff

(

Staff\_ID CHAR(10),

NIC VARCHAR(12),

First\_Name VARCHAR(20),

Last\_Name VARCHAR(20),

Email VARCHAR(30),

CONSTRAINT Staff\_PK PRIMARY KEY (Staff\_ID)

);

------------------------STAFF MOBILE NUMBER TABLE---------------------

CREATE TABLE StaffMobile\_No

(

Staff\_ID CHAR(10),

Mobile\_No CHAR(10),

CONSTRAINT StaffMobile\_No\_PK PRIMARY KEY (Staff\_ID, Mobile\_No),

CONSTRAINT StaffMobile\_No\_FK FOREIGN KEY (Staff\_ID) REFERENCES Staff(Staff\_ID)

);

------------------------------FEEDBACK TABLE--------------------------

CREATE TABLE Feedback

(

Feedback\_No CHAR(10),

Related\_Course VARCHAR(25),

Rating INTEGER,

Text VARCHAR(100),

CONSTRAINT Feedback\_PK PRIMARY KEY (Feedback\_No)

);

------------------------------COURSE TABLE----------------------------

CREATE TABLE Course

(

Course\_ID CHAR(10),

Course\_Name VARCHAR(30),

Type VARCHAR(20),

Customer\_ID CHAR(10),

Trainer\_ID CHAR(10),

CONSTRAINT Course\_PK PRIMARY KEY (Course\_ID),

CONSTRAINT Course\_Trainer\_ID\_FK2 FOREIGN KEY (Trainer\_ID) REFERENCES Trainer(Trainer\_ID)

);

-----------------------------DESIGN TABLE-----------------------------

CREATE TABLE Design

(

Course\_ID CHAR(10),

Trainer\_ID CHAR(10),

Designed DATE,

CONSTRAINT Design\_PK PRIMARY KEY (Course\_ID, Trainer\_ID),

CONSTRAINT Design\_Customer\_ID\_FK1 FOREIGN KEY (Course\_ID) REFERENCES Course(Course\_ID),

CONSTRAINT Design\_Trainer\_ID\_FK2 FOREIGN KEY (Trainer\_ID) REFERENCES Trainer(Trainer\_ID)

);

-----------------------------Customer TABLE---------------------------

CREATE TABLE Customer

(

Customer\_ID CHAR(10),

NIC VARCHAR(12),

First\_Name VARCHAR(20),

Last\_Name VARCHAR(20),

Height INTEGER,

Weight INTEGER,

DOB DATE,

Mobile\_No CHAR(10),

Course\_ID CHAR(10),

Feedback\_No CHAR(10),

CONSTRAINT Customer\_PK PRIMARY KEY (Customer\_ID),

CONSTRAINT Customer\_FK1 FOREIGN KEY (Course\_ID) REFERENCES Course(Course\_ID),

CONSTRAINT Customer\_FK2 FOREIGN KEY (Feedback\_No) REFERENCES Feedback(Feedback\_No)

);

----------------------------INQUIRY TABLE-----------------------------

CREATE TABLE Inquiry

(

Inquiry\_No CHAR(10),

Title VARCHAR(50),

Description VARCHAR(100),

Customer\_ID CHAR(10),

Staff\_ID CHAR(10),

CONSTRAINT Inquiry\_PK PRIMARY KEY (Inquiry\_No),

CONSTRAINT Inquiry\_User\_ID\_FK1 FOREIGN KEY (Customer\_ID) REFERENCES Customer(Customer\_ID),

CONSTRAINT Inquiry\_Staff\_ID\_FK2 FOREIGN KEY (Staff\_ID) REFERENCES Staff(Staff\_ID)

);

-----------------------------DEPENDANT TABLE--------------------------

CREATE TABLE Dependant

(

Staff\_ID CHAR(10),

Dependant\_Name VARCHAR(50),

DOB DATE,

CONSTRAINT Dependant\_PK PRIMARY KEY (Staff\_ID, Dependant\_Name)

);

-------------------------------TEACH TABLE----------------------------

CREATE TABLE Teach

(

Trainer\_ID CHAR(10),

Course\_ID CHAR(10),

Taught\_Date DATE,

Taught\_Time TIME,

CONSTRAINT Teach\_PK PRIMARY KEY (Trainer\_ID, Course\_ID)

);

-------------------------------MANAGE TABLE---------------------------

CREATE TABLE Manage

(

Staff\_ID CHAR(10),

Course\_ID CHAR(10),

CONSTRAINT Manage\_PK PRIMARY KEY (Staff\_ID, Course\_ID),

CONSTRAINT Manage\_Staff\_ID\_FK1 FOREIGN KEY (Staff\_ID) REFERENCES Staff(Staff\_ID),

CONSTRAINT Manage\_Staff\_ID\_FK2 FOREIGN KEY (Course\_ID) REFERENCES Course(Course\_ID)

);

------------------------------COURSE\_FEE TABLE------------------------

CREATE TABLE Course\_fee

(

Payment\_ID CHAR(10),

Customer\_ID CHAR(10),

Course\_Type VARCHAR(50),

Payment\_Method VARCHAR(30),

Amount FLOAT,

CONSTRAINT Course\_fee\_PK PRIMARY KEY (Payment\_ID),

CONSTRAINT Course\_fee\_ID\_FK1 FOREIGN KEY (Customer\_ID) REFERENCES Customer(Customer\_ID)

);

**Insert Table**

--------------------Inserting Data to Trainer Table-------------------

Insert into Trainer values('IFT001','199712108V','Isuru','Subasinghe','isurusubasinghe@gmail.com','0712258021');

Insert into Trainer values('IFT002','199512403V','Kalana','Pramudith','kalanapramudith@gmail.com','0751872281');

Insert into Trainer values('IFT003','199013501V','Rashmi','Ekanayake','rashmiekanayake@gmail.com','0760332231');

Insert into Trainer values('IFT004','199120705V','Kasun','Sankalpa','kasunsankalpa@gmail.com','0781121121');

Insert into Trainer values('IFT005','199650407V','Kushan','Peiris','kushanpeiris@gmail.com','0751514569');

----------------------Inserting Data to Course Table------------------

Insert into Course values('C001','Barbel Preacher Curl','Biceps','FT001','IFT001');

Insert into Course values('C002','Dumbell Concentration Curl','Biceps','FT002','IFT002');

Insert into Course values('C003','Crunches','ABS','FT003','IFT003');

Insert into Course values('C004','Bench Press','Chest','FT004','IFT004');

Insert into Course values('C005','Decline Crunch','ABS','FT005','IFT005');

Insert into Course values('C006','Barbel Squat','Leg','FT001','IFT003');

Insert into Course values('C007','Barbel Front Raise','Shoulder','FT003','IFT002');

Insert into Course values('C008','Burpee','Cardio','FT004','IFT002');

Insert into Course values('C009','Jumping Squat','Cardio','FT003','IFT004');

Insert into Course values('C010','Two Bar Pullups','Back','FT001','IFT002');

-----------------------Inserting Data to Design table-----------------

Insert into Design values('C001','IFT002','2020/05/08');

Insert into Design values('C002','IFT002','2020/01/12');

Insert into Design values('C003','IFT001','2020/04/10');

Insert into Design values('C004','IFT003','2020/06/03');

Insert into Design values('C005','IFT004','2020/07/02');

Insert into Design values('C006','IFT005','2021/01/12');

Insert into Design values('C007','IFT004','2021/04/14');

Insert into Design values('C008','IFT002','2020/09/28');

Insert into Design values('C009','IFT003','2020/02/22');

Insert into Design values('C010','IFT002','2021/03/16');

---------------------Inserting Data to Staff Table--------------------

Insert into Staff values('ST001','199810500V','Kumara','Chathuranga','kumarachathuranga@gmail.com');

Insert into Staff values('ST002','199650010V','Buddhika','Madhusanka','buddikamadhusanka@gmail.com');

Insert into Staff values('ST003','199810500V','Kumara','Chathuranga','kumarachathuranga@gmail.com');

insert into Staff values('ST004','199142212V','Kasuni','Chandrasiri','kasunichandrasiri@gmail.com');

insert into Staff values('ST005','199855135V','Melani','Fernando','melanifernando@gmail.com');

---------------------Inserting Data to Feedback Table-----------------

Insert into Feedback values('FBD001','Good',5,'Barbel Preacher Curl');

Insert into Feedback values('FBD002','Exellent',10,'Crunches');

Insert into Feedback values('FBD003','Bad',2,'Bench Press');

Insert into Feedback values('FBD004','Good',5,'Burpee');

Insert into Feedback values('FBD005','Good',5,'Decline Crunch');

Insert into Feedback values('FBD006','Great',7,'Barbel Squat');

Insert into Feedback values('FBD007','Good',5,'Jumping Squat');

Insert into Feedback values('FBD008','Great',5,'Two Bar Pullups');

Insert into Feedback values('FBD009','Bad',3,'Bench Press');

Insert into Feedback values('FBD010','Good',6,'Burpee');

Insert into Feedback values('FBD011','Bad',3,'Burpee');

Insert into Feedback values('FBD012','Good',6,'Dumbell Concentration Curl');

Insert into Feedback values('FBD013','Good',9,'Two Bar Pullups');

Insert into Feedback values('FBD014','Bad',3,'Decline Crunch');

-------------------Inserting Data to Customer table-------------------

Insert into Customer Values('FT001','200011451V','Yasiru','Abeysinghe',155,55,'2000/11/05','0711932532','C001','FBD001');

Insert into Customer Values('FT002','200014352V','Malithi','Sachintha',152,65,'2000/04/09','0751582592','C003','FBD003');

Insert into Customer Values('FT003','199853489V','Prabodi','Bandara',155,60,'1999/06/29','0764291234','C003','FBD009');

Insert into Customer Values('FT004','199955478V','Kithmina','Siriwardana',158,70,'1999/07/21','0751121215','C006','FBD006');

Insert into Customer Values('FT005','200012143V','Dilmith','Bulathsinhala',157,55,'2000/12/05','0764312311','C008','FBD004');

Insert into Customer Values('FT006','200124525V','Rusiru','Malshan',157,65,'2000/10/05','0764312511','C008','FBD010');

Insert into Customer Values('FT007','200012163V','Theshan','Ransasinghe',159,65,'2000/05/05','0754312311','C008','FBD011');

Insert into Customer Values('FT008','199911143V','Kasun','Prathiba',150,55,'2000/12/10','0767894561','C002','FBD012');

Insert into Customer Values('FT009','199785231V','Sudesh','Gunasinghe',158,56,'2000/11/05','0778889986','C005','FBD005');

Insert into Customer Values('FT010','200044411V','Miulu','Nishan',152,68,'1998/11/05','0725554777','C010','FBD008');

Insert into Customer Values('FT011','199878985V','Dananjaya','Perera',168,80,'2000/03/24','0759963214','C010','FBD013');

Insert into Customer Values('FT012','200142547V','Naveen','Madushan',167,68,'2000/10/06','0764363311','C005','FBD014');

----------Inserting Data to Staffmobilenumber table-------------------

Insert into StaffMobile\_No values('ST001','0715564421');

Insert into StaffMobile\_No values('ST002','0784563324');

Insert into StaffMobile\_No values('ST003','0763389914');

Insert into StaffMobile\_No values('ST004','0755637741');

Insert into StaffMobile\_No values('ST005','0714482236');

----------------Inserting Data to Dependant Table---------------------

Insert into Dependant values('ST001','Heshani Dinuththara','1999/04/05');

Insert into Dependant values('ST002','Piyal Hewawithana','1960/03/05');

Insert into Dependant values('ST003','Nayomi Scott','1992/05/27');

Insert into Dependant values('ST004','Daniel Perera','1965/10/05');

Insert into Dependant values('ST005','Jagath Peiris','1968/08/09');

--------------------Inserting Data to Manage Table--------------------

Insert into Manage values('ST001','C001');

Insert into Manage values('ST002','C001');

Insert into Manage values('ST003','C002');

Insert into Manage values('ST004','C002');

Insert into Manage values('ST005','C003');

Insert into Manage values('ST002','C003');

Insert into Manage values('ST003','C004');

Insert into Manage values('ST001','C004');

Insert into Manage values('ST004','C005');

Insert into Manage values('ST005','C005');

----------------Inserting Data to Inquiry Table-----------------------

Insert into Inquiry values('IN001','Forget Password','I could not be able to reset my password','FT002','ST002');

Insert into Inquiry values('IN002','Payment Error','Payment receipt is not issued after the payment','FT008','ST001');

Insert into Inquiry values('IN003','Account Settings','Account deactivation function is not working properly','FT012','ST003');

------------------Inserting Data to Teach Table-----------------------

Insert into Teach values('IFT001','C001','2020.01.09','08:30');

Insert into Teach values('IFT002','C002','2020.01.08','08:30');

Insert into Teach values('IFT003','C003','2020.01.29','18:30');

Insert into Teach values('IFT004','C004','2020.02.10','15:30');

Insert into Teach values('IFT005','C005','2021.03.08','09:30');

-----------------Inserting Data to Course fee Table-------------------

Insert into Course\_fee values('PMT001','FT001','Biceps','Credit Card','2500.00');

Insert into Course\_fee values('PMT002','FT002','ABS','Bank transfer','1500.00');

Insert into Course\_fee values('PMT003','FT003','ABS','Paypal','1500.00');

Insert into Course\_fee values('PMT004','FT004','Leg','Bank transfer','2000.00');

Insert into Course\_fee values('PMT005','FT005','Cardio','Credit Card','2500.00');

Insert into Course\_fee values('PMT006','FT006','Cardio','Bank transfer','2500.00');

Insert into Course\_fee values('PMT007','FT007','Cardio','Bank transfer','2500.00');

Insert into Course\_fee values('PMT008','FT008','Biceps','Bank transfer','2500.00');

Insert into Course\_fee values('PMT009','FT009','ABS','Paypal','2500.00');

Insert into Course\_fee values('PMT010','FT010','Back','Bank transfer','3000.00');

Insert into Course\_fee values('PMT011','FT011','Back','Paypal','3000.00');

Insert into Course\_fee values('PMT012','FT012','ABS','Bank transfer','1500.00');

**Performance Considerations**

Especially the system accuracy, real time availability and updatability are highly considered as performance requirements of our system. In order to achieve these requirements sophisticated methodologies are been maintained to minimize the system traffic resulting better access and performance speed. New products, services and business models are highly promoted in our system via expert systems. In addition, the academic personals are being managed through an Office Automated system. And this system has the capability of increasing the system performance on-demand.

**Security Requirements**

Since this system is implemented in a service organization information security is highly considered. In order to fulfill the protection of sensitive data, security measures such as data encryption, maintaining separate servers to store system data, following backup options provided by cloud and advanced access control policies are being maintained.

**End of the Document**