

Bahamas Sports Physio Center – BSPC Database System

Team

Andy Nguyen	2733870
Dinh Duc Bui	27321651
Majed Alkhouri	26089046
Mehal Patel	26789234
Peter Chen	27391404

Login Information

URL: https://guc353_1.encs.concordia.ca

Username: guc353_1

Password: mehal420

Table of Contents

1.	INTRODUCTION.....	2
2.	DATABASE ASSUMPTIONS.....	2
3.	ER MODEL.....	4
4.	RELATIONAL SCHEMA MODEL.....	5
5.	FUNCTIONAL DEPENDENCIES.....	8
6.	REPORTS.....	10
7.	SAMPLE SESSIONS.....	15
8.	DDL.....	25
9.	CONTRIBUTIONS.....	31
10.	REFERENCES.....	31

Introduction

The Bahamas Sports Physio Center web system allows usage for three types of users. A receptionist, the medical staff members, and patients, for each user they can perform their own tasks.

Database Assumptions

Administration VS. Admin Assumption

- 1) Only the admin can create, modify or remove workers from the system. Only he or she will have access to this feature, the workers do not.
- 2) The admin already exists in the system, so he or she can add the workers into the database.
- 3) There is only one receptionist. The receptionist has a lot of accessibility in the system such as registration, payment or making appointments but he or she will NOT be able to modify, create or delete any information about the workers.

Appointment AND Prescription Assumption

- 4) The patient who enters the center already has referral from a trainer and is ready to either be registered into the system or have an appointment made.
- 5) The prescription given to the patient will always be a unique number. No other center can have the same prescription number as another. It is under the assumption that the prescription will be written on a prescription pad and those always have to be unique.
- 6) Doctors and therapists have coordinated prescription and treatment based on the prescription number given to the patient.
- 7) Appointments are made by the patient only to receive treatment provided by a therapist. In other words, appointments are not required by the patient to visit a doctor. Patients can only make appointments for themselves.

BSPC Database System

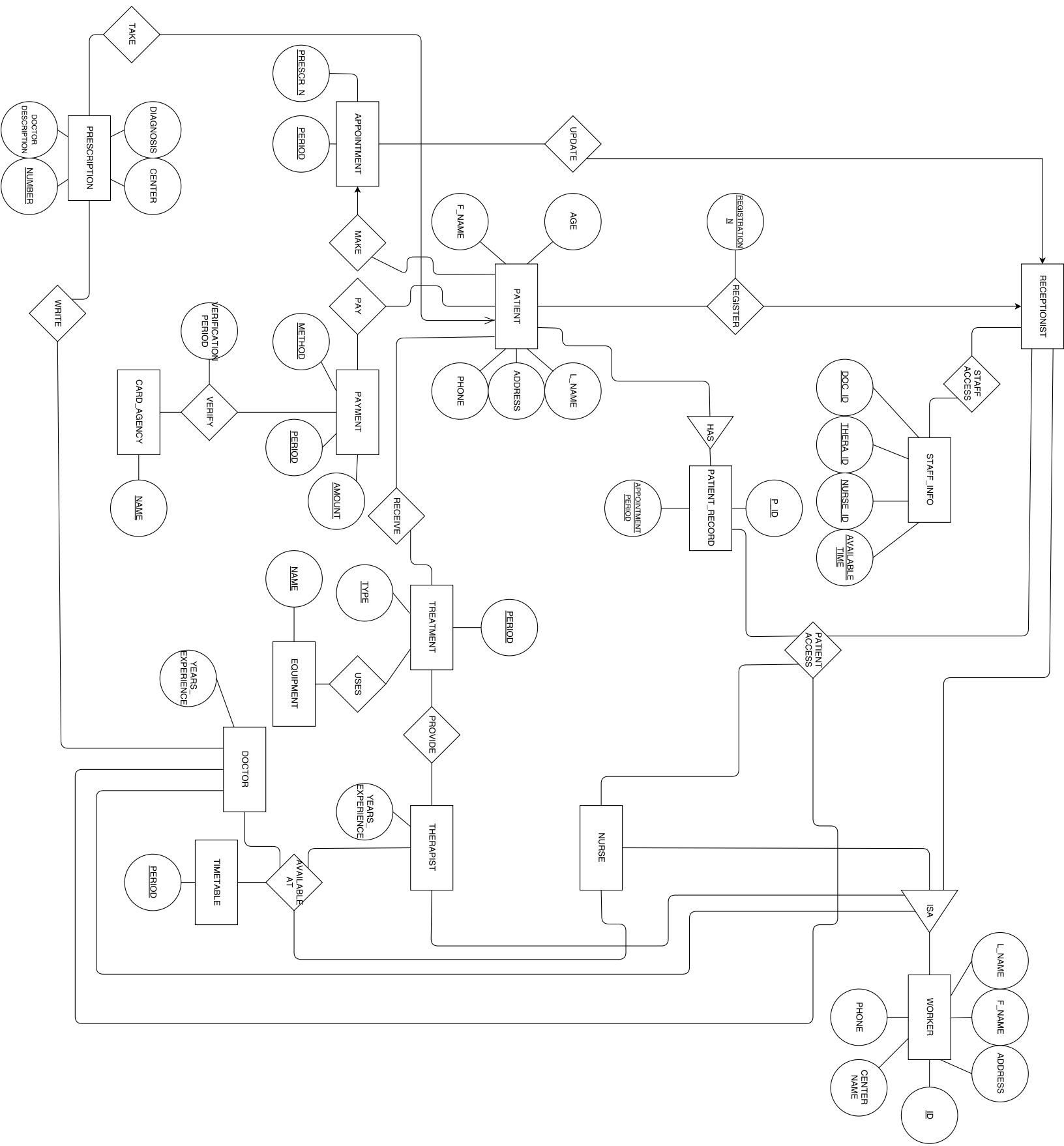
- 8) Receptionist can delete or add an appointment, but will not switch any appointment time amongst the patients.

PAYMENTS ASSUMPTION

- 9) Fees must be paid for the making of appointments, and there shall be no refund for appointment cancellation.
- 10) Payments should be made on the day of the appointment. Payments made are also assumed to always be in the correct format and amount and in a scenario where the receptionist would give the patient a physical receipt/bill to be payed and inputted through the website.
- 12) Verification of the payments by card processing agency will be done at 21:00:00 everyday.
- 13) There is only one card processing agency

OTHER ASSUMPTIONS

- 14) Workers, under the same field of practice, cannot have the same availability time. For instance, two therapists cannot both be free on the same day at 8:00:00.
- 15) IDs are unique for both workers and patients. In the former case, the first digit of the ID determines the worker's field of practice (i.e. 1=RECEPTIONIST; 2=NURSE; 3=DOCTOR; 4=THERAPIST).



Relational Schema Model

/******RELATIONS CONVERTED FROM ENTITY SETS******/

APPOINTMENT(PRESCR N, PERIOD)

- Primary Key= PERIOD
- Foreign Key:
 - PRESCR_N, which references PRESCRIPTION(NUMBER)
 - PERIOD, which references PROVIDE(PERIOD)

CARD_AGENCY(NAME)

- Primary Key= NAME

DOCTOR(ID, YEARS_EXPERIENCE)

- Primary Key= ID
- Foreign Key= ID, which references worker(ID)

EQUIPMENT(NAME)

- Primary Key= NAME

NURSE(ID)

- Primary Key= ID
- Foreign Key= ID, which references worker(ID)

PATIENT(P_ID, F_NAME, L_NAME, AGE, ADDRESS, PHONE)

- Primary Key= P_ID
- Foreign Key= P_ID, which references patient_record(P_ID)

PAYMENT(METHOD, PERIOD, AMOUNT)

- Primary Key= AMOUNT
- Foreign Key=PERIOD, which references APPOINTMENT(PERIOD)

PRESCRIPTION(NUMBER, DIAGNOSIS, CENTER, DOCTOR_DESCRIPTION)

- Primary Key= NUMBER
- Foreign Key=NUMBER which references WRITES(NUMBER)

RECEPTIONIST(ID)

- Primary Key= ID
- Foreign Key= ID, which references worker(ID)

STAFF_INFO(DOC_ID, THERA_ID, NURSE_ID, AVAILABLE TIME)

- Primary Key= AVAILABLE_TIME
- Foreign Key:
 - DOC_ID, which references DOCTOR(ID)
 - THERA_ID, which references THERAPIST(ID)
 - NURSE_ID, which references NURSE(ID)
 - AVAILABLE_TIME, which references TIMETABLE(PERIOD)

THERAPIST(ID, YEARS_EXPERIENCE)

- Primary Key= ID
- Foreign Key= ID, which references worker(ID)

TIMETABLE(PERIOD)

BSPC Database System

- Primary Key= PERIOD

TREATMENT(PERIOD, TYPE)

- Primary Key=PERIOD,
- Foreign Key=PERIOD, which references TIMETABLE(PERIOD)

patient_record(P_ID, APPOINTMENT PERIOD, THERA_ID)

- Primary Key= P_ID
- Foreign Key:
 - APPOINTMENT_PERIOD, THERA_ID, which reference PROVIDE(PERIOD, THERA_ID)

worker(ID, F_NAME, L_NAME, ADDRESS, CENTER NAME, PHONE)

- Primary Key= ID

/*****RELATIONS CONVERTED FROM RELATIONSHIP SETS*****/

AVAILABLE_AT(THERA_ID, DOC_ID, NURSE_ID, PERIOD)

- Primary Key= PERIOD
- Foreign Key:
 - PERIOD, which references TIMETABLE(PERIOD)
 - THERA_ID, which references THERAPIST(ID)
 - DOC_ID, which references DOCTOR(ID)
 - NURSE_ID, which references NURSE(ID)

MAKE(PRESCR_N, PERIOD, P_ID)

- Primary Key= PRESCR_N
- Foreign Key:
 - PERIOD, PRESCR_N which reference APPOINTMENT(PERIOD,PRESKR_N)
 - P_ID, which references PATIENT(P_ID)

PATIENT_ACCESS(NURSE_ID, DOC_ID, R_ID, P_ID)

- Primary Key= P_ID
- Foreign Key:
 - P_ID, which references patient_record(P_ID)
 - R_ID, which references RECEPTIONIST(ID)
 - DOC_ID, which references DOCTOR(ID)
 - NURSE_ID, which references NURSE(ID)

PAY(P_ID, AMOUNT, PERIOD)

- Primary Key=PERIOD,
- Foreign Key:
 - P_ID, which references PATIENT(P_ID)
 - AMOUNT, PERIOD which references PAYMENT(AMOUNT, PERIOD)

PROVIDE(PERIOD, TYPE, THERA_ID)

- Primary Key= THERA_ID,
- Foreign Key:
 - PERIOD, TYPE which references TREATMENT(PERIOD,TYPE)

BSPC Database System

- THERA_ID, which references THERAPIST(ID)

RECEIVE(PERIOD, TYPE, P_ID)

- Primary Key= P_ID
- Foreign Key:
 - PERIOD, TYPE which references PROVIDE(PERIOD,TYPE)
 - P_ID, which references PATIENT(P_ID)

REGISTER(REGISTRATION_N, R_ID, P_ID)

- Primary Key= REGISTRATION_N
- Foreign Key:
 - P_ID, which references PATIENT(P_ID)
 - R_ID, which references RECEPTIONIST(ID)

STAFF_ACCESS(AVAILABLE_TIME, R_ID)

- Primary Key= R_ID
- Foreign Key:
 - R_ID, which references RECEPTIONIST(ID)
 - AVAILABLE_TIME, which references TIMETABLE(PERIOD)

TAKE(P_ID, NUMBER)

- Primary Key= NUMBER
- Foreign Key:
 - P_ID, which references PATIENT(P_ID)
 - NUMBER, which references PRESCRIPTION(NUMBER)

UPDATES(R_ID, APPOINTMENT_PERIOD, PRESCR_N)

- Primary Key= R_ID
- Foreign Key:
 - R_ID which references from RECEPTIONIST(ID)
 - APPOINTMENT_PERIOD, PRESCR_N which reference APPOINTMENT(PERIOD, PRESCR_N)

USES(TREAT_PERIOD, TREAT_TYPE, EQUIP_NAME)

- Primary Key= EQUIP_NAME
- Foreign Key:
 - TREAT_PERIOD, TREAT_TYPE which reference from TREATMENT(PERIOD,TYPE)
 - EQUIP_NAME, which references EQUIPMENT(NAME)

VERIFY(VERIFICATION_PERIOD, CARD_AGENCY_NAME, PAY_AMOUNT, PAY_PERIOD)

- Primary Key= PAY_PERIOD
- Foreign Key:
 - CARD_AGENCY_NAME, which references CARD_AGENCY(NAME)
 - PAY_AMOUNT, PAY_PERIOD, which reference PAYMENT(AMOUNT, PERIOD)

WRITES(DOC_ID, NUMBER)

- Primary Key= NUMBER
- Foreign Key:

BSPC Database System

- DOC_ID, which references DOCTOR(ID)

Functional Dependencies

For the relation to be in 3NF, one of the following three properties must be filled: must be trivial; LHS is a superkey; or if $X \rightarrow A$ then A is part of the key.

STAFF_INFO has four elements which are all keys, therefore the FDs are trivial

STAFF_INFO(Doc_ID, Thera_ID, Nurse_ID, Available Time)

FDs= {(Doc_ID, Thera_ID, Nurse_ID, Available Time \rightarrow Doc_ID), (Doc_ID, Thera_ID, Nurse_ID, Available Time \rightarrow Thera_ID), (Doc_ID, Thera_ID, Nurse_ID, Available Time \rightarrow Nurse_ID), (Doc_ID, Thera_ID, Nurse_ID, Available Time \rightarrow Available Time)}

Patient_record has elements which again are all keys therefore the FD is trivial

patient_record(P_ID, Appointment_Period)

FDs= {(P_ID, Appointment Period \rightarrow P_ID), (P_ID, Appointment_Period \rightarrow Appointment Period)}

PATIENT relation has one key P_ID, which is a superkey as it can obtain all the other elements.

PATIENT (P_ID, F_Name, L_Name, Age, Address, Phone)

FDs= {(P_ID \rightarrow F_Name), (P_ID \rightarrow L_Name), (P_ID \rightarrow Age), (P_ID \rightarrow Address), (P_ID \rightarrow Phone)}

APPOINTMENT has two keys Presc_N and Period, and they are the only two elements therefore the FD is trivial.

APPOINTMENT (Presc_N, Period)

FDs= {(Presc_N, Period \rightarrow Presc_N), (Presc_N, Period \rightarrow Period)}

PAYMENT has 3 elements which are all keys therefore it is trivial.

PAYMENT (Method, Period, Amount)

FDs= {(Method, Period, Amount \rightarrow Method), (Method, Period, Amount \rightarrow Period), (Method, Period, Amount \rightarrow Amount)}

CARD_AGENCY has two elements which are both keys therefore it is trivial.

CARD_AGENCY (Period, Amount)

FDs= {(Period, Amount \rightarrow Period), (Period, Amount \rightarrow Amount)}

PRESCRIPTION has one key, Number, which is a super key and can retrieve all the other elements.

BSPC Database System

PRESCRIPTION(Number, Diagnosis, Center, Doctor_Description)

FDs= {(Number -> Diagnosis), (Number-> Center), (Number -> Doctor_Description)}

TREATMENT has only two keys Period and Type which are both candidate keys. Therefore, the FD is trivial

TREATMENT (Period, Type)

FDs= {(Period, Type -> Period), (Period, Type -> Type)}

EQUIPMENT has only one element and it is the key, therefore the FD is trivial

EQUIPMENT (Name)

FDs= {(Name -> Name)}

TIMETABLE has only one element and it is the key, therefore it is trivial

TIMETABLE (Period)

FDs= {(Period -> Period)}

Worker has many elements but has one key ID which is a super key. The ID can retrieve all other elements of worker. Worker is also the parent for Receptionist, Nurse, Doctor and Therapist which all follow the same relations as Worker.

worker(ID, F_Name, L_Name, Address, Center_Name, Phone)

FDs= {(ID -> F_Name, ID -> L_Name), (ID -> Address), (ID -> Center_Name), (ID -> Phone)}

*NOTE: The FDs relative to the relational schema derived from the relationship sets are all trivial. Hence, they all satisfy the 3NF requirement.

Reports + Additional Reports

REPORT 1. How many patients has each physiotherapists seen in a specified period of time?

```
mysql> SELECT COUNT(P_ID), THERA_ID
-> FROM RECEIVE e, PROVIDE p
-> WHERE e.PERIOD = p.PERIOD AND p.THERA_ID = '40001';
+-----+-----+
| COUNT(P_ID) | THERA_ID |
+-----+-----+
|          1 |    40001 |
+-----+-----+
1 row in set (0.00 sec)

mysql> █
```

/*-----*/

REPORT 2. Which piece of equipment has never been used?

```
mysql> SELECT NAME
-> FROM USES, EQUIPMENT
-> WHERE NAME NOT IN (SELECT EQUIP_NAME FROM EQUIPMENT
-> JOIN USES ON NAME = EQUIP_NAME) GROUP BY NAME;
+-----+
| NAME |
+-----+
| EXERCISE BIKE |
| ISOKINETIC DEVICE |
| NORDIC TRACK |
| STATIONARY BICYCLE |
| TREADMILL |
| WEIGHTS |
+-----+
6 rows in set (0.00 sec)

mysql> █
```

BSPC Database System

REPORT 3. List all the information available for physio patients who have been at the center.

```
mysql> SELECT P_ID, F_NAME, L_NAME, ADDRESS, PHONE, AGE
-> FROM PATIENT;
```

P_ID	F_NAME	L_NAME	ADDRESS	PHONE	AGE
2	RAGUEL	PHILYAW	2000 STREET TWO	(514)111-2222	19
3	RHEDWIG	DINEEN	3000 STREET THREE	(514)111-3333	21
4	KRISTIAN	FULLAM	4000 STREET FOUR	(514)111-4444	48
5	ORALEE	LUNDREN	5000 STREET FIVE	(514)111-5555	55
6	JANETT	BILLINGSLEA	6000 STREET SIX	(514)111-6666	33
7	KAZMIERCZAK	FLORIA	7000 STREET SEVEN	(514)111-7777	24
8	WEI	BOOMER	8000 STREET EIGHT	(514)111-8888	34
10	DR	DRE	12 Gangster	(514)333-3524	30
11	Dumb	Dumb	123	514	23
12	Andy	Ng	123	123	55
13	Bob	Patel	dd	231	63
14	Testy	Test	123 Imagine	5147894561	96

12 rows in set (0.00 sec)

REPORT 4. List all the information available for therapists who have been at the center.

```
mysql> SELECT F_NAME, L_NAME, ADDRESS, PHONE, CENTER, ID
-> FROM worker
-> WHERE ID > 40000 AND CENTER <> 'BSPC';
```

F_NAME	L_NAME	ADDRESS	PHONE	CENTER	ID
INGA	ALVARES	404 STREET 4PA4	(514)403-5254	ABBC	40004
ONIE	CHATTERTON	405 STREET 4PA5	(514)405-5255	ABBC	40005
SHERIE	WALCOTT	406 STREET 4PA6	(514)406-5256	ABBC	40006
PAMELIA	HIGH	407 STREET 4PA7	(514)407-5257	BBC	40007
ERZA	SWAYNE	408 STREET 4PA8	(514)408-5258	BBC	40008
WEI	KOOPMAN	409 STREET 4PA9	(514)409-5259	POKEMON CENTER	40009
ROGER	RASKIN	410 STREET 4PA10	(514)410-5260	LHSC	40010

7 rows in set (0.00 sec)

REPORT 5. List all the information available for therapists who work at the center.

```
mysql> SELECT F_NAME, L_NAME, ADDRESS, PHONE, CENTER, ID
-> FROM worker
-> WHERE ID > 40000 and CENTER = 'BSPC';
```

F_NAME	L_NAME	ADDRESS	PHONE	CENTER	ID
ROSA	BICKHAM	401 STREET 4PA1	(514)401-5251	BSPC	40001
GAYLORD	CURTSINGER	402 STREET 4PA2	(514)402-5252	BSPC	40002
FLORENCIO	VEILLEUX	403 STREET 4PA3	(514)403-5253	BSPC	40003

3 rows in set (0.00 sec)

```
mysql>
```

BSPC Database System

/***/

REPORT 6. List detail of reservations for a specific patient.

```
mysql> SELECT P_ID, TYPE, PERIOD FROM RECEIVE
-> WHERE P_ID = '2';
+-----+-----+-----+
| P_ID | TYPE                | PERIOD                |
+-----+-----+-----+
| 2    | ULTRASOUND MESSAGE | 2017-09-02 14:30:00 |
+-----+-----+-----+
1 row in set (0.00 sec)
```

/***/

REPORT 7. List availability for physiotherapist/doctor during a specified period of time.

```
mysql> SELECT DOC_ID, THERA_ID, PERIOD
-> FROM AVAILABLE_AT
-> WHERE PERIOD BETWEEN "2017-09-01" AND "2017-09-03";
+-----+-----+-----+
| DOC_ID | THERA_ID | PERIOD                |
+-----+-----+-----+
| NULL   | 40001    | 2017-09-01 01:12:12 |
| NULL   | 40001    | 2017-09-01 01:12:15 |
| 30001  | 40001    | 2017-09-01 14:00:00 |
| 30001  | 40001    | 2017-09-01 14:30:00 |
| 30001  | 40001    | 2017-09-01 15:00:00 |
| 30002  | 40002    | 2017-09-02 13:00:00 |
| 30002  | 40002    | 2017-09-02 13:30:00 |
| 30002  | 40002    | 2017-09-02 14:00:00 |
| 30002  | 40002    | 2017-09-02 14:30:00 |
+-----+-----+-----+
9 rows in set (0.00 sec)
```

/***/

EXTRA REPORTS

Years of experience from doctor:

```
mysql> SELECT ID, YEARS_EXPERIENCE
-> FROM DOCTOR;
+-----+-----+
| ID    | YEARS_EXPERIENCE |
+-----+-----+
| 30001 | 12               |
| 30002 | 3                |
| 30003 | 8                |
| 30004 | 1                |
| 30005 | 2                |
| 30006 | 3                |
| 30007 | 4                |
| 30008 | 5                |
| 30009 | 9                |
| 30010 | 10               |
+-----+-----+
10 rows in set (0.00 sec)
```

Years of experience from therapist report:

```
mysql> SELECT ID, YEARS_EXPERIENCE
-> FROM THERAPIST;
+-----+-----+
| ID    | YEARS_EXPERIENCE |
+-----+-----+
| 40001 | 5                |
| 40002 | 6                |
| 40003 | 7                |
| 40004 | 8                |
| 40005 | 9                |
| 40006 | 10               |
| 40007 | 11               |
| 40008 | 8                |
| 40009 | 6                |
| 40010 | 1                |
+-----+-----+
10 rows in set (0.00 sec)
```


BSPC Database System

List of all staff information accessed by the receptionist:

```
mysql> SELECT DOC_ID, THERA_ID, NURSE_ID, AVAILABLE_TIME
-> FROM STAFF_INFO;
```

DOC_ID	THERA_ID	NURSE_ID	AVAILABLE_TIME
30001	40001	20001	2017-09-01 14:00:00
30001	40001	20001	2017-09-01 14:30:00
30001	40001	20001	2017-09-01 15:00:00
30002	40002	20002	2017-09-02 13:00:00
30002	40002	20002	2017-09-02 13:30:00
30002	40002	20002	2017-09-02 14:00:00
30002	40002	20002	2017-09-02 14:30:00
30003	40003	20003	2017-09-03 15:00:00
30003	40003	20003	2017-09-03 15:15:00
30003	40003	20003	2017-09-03 15:30:00
30003	40003	20003	2017-09-03 15:45:00
30004	40004	20004	2017-09-04 16:00:00
30004	40004	20004	2017-09-04 16:15:00
30005	40005	20005	2017-09-05 13:15:00
30005	40005	20005	2017-09-05 14:15:00
30006	40006	20006	2017-09-06 14:15:00
30006	40006	20006	2017-09-06 14:35:00
30006	40006	20006	2017-09-06 14:50:00
30007	40007	20007	2017-09-07 13:00:00
30007	40007	20007	2017-09-07 13:20:00
30007	40007	20007	2017-09-07 13:50:00
30008	40008	20008	2017-09-08 09:10:00
30008	40008	20008	2017-09-08 10:10:00
30009	40009	20009	2017-09-09 09:20:00
30009	40009	20009	2017-09-09 09:50:00
30010	40010	20010	2017-09-10 09:30:00
30010	40010	20010	2017-09-10 10:30:00

List of patient payment methods:

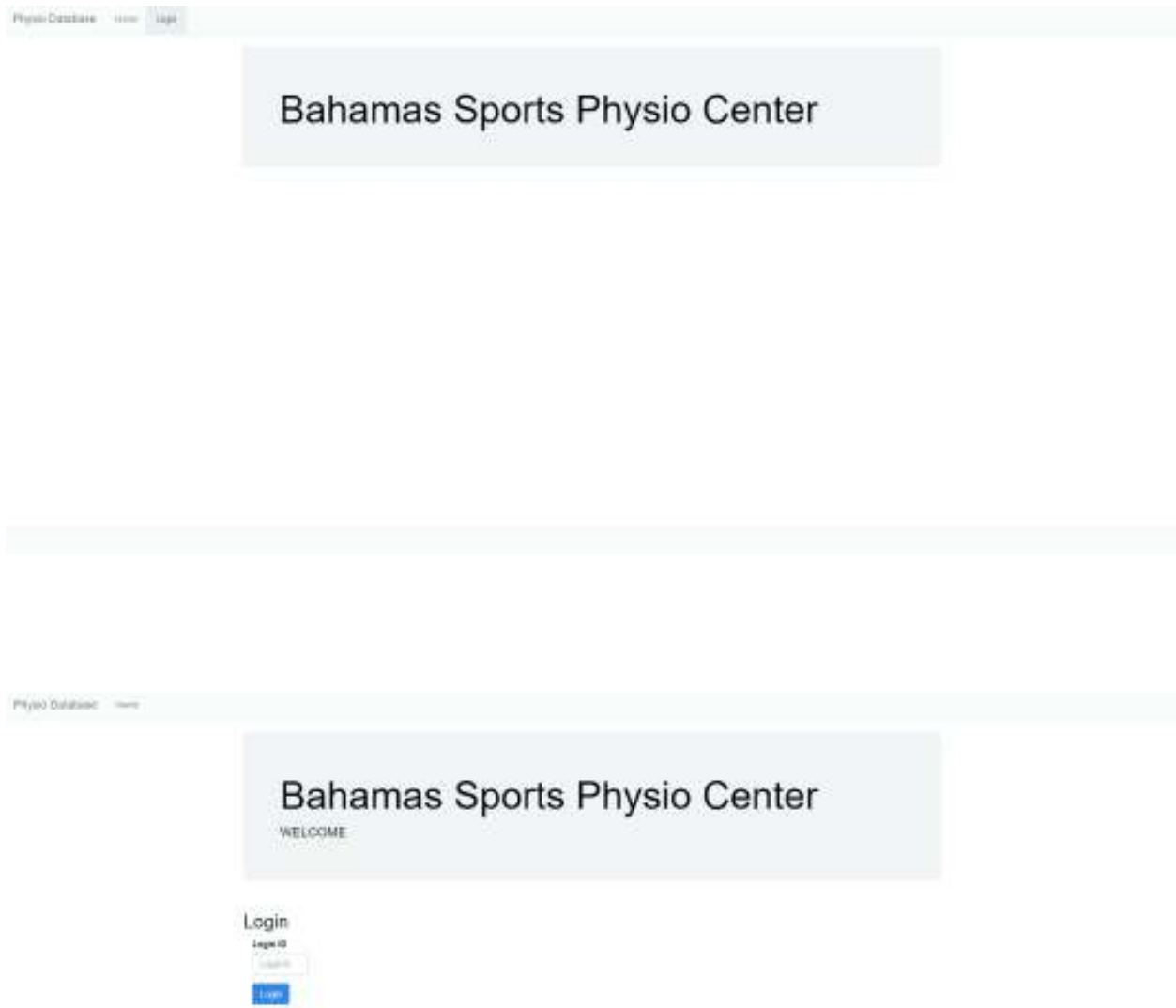
```
mysql> SELECT METHOD FROM PAYMENT GROUP BY METHOD;
```

METHOD
CARD
CASH
CHEQUE

3 rows in set (0.00 sec)

Sample Session

Main Page



-The user will arrive at the home page(top image) and then he/she will move on to the login page where they will login in with their ID.

BSPC Database System

View Appointment:



-The patient can view his/her appointments that they made

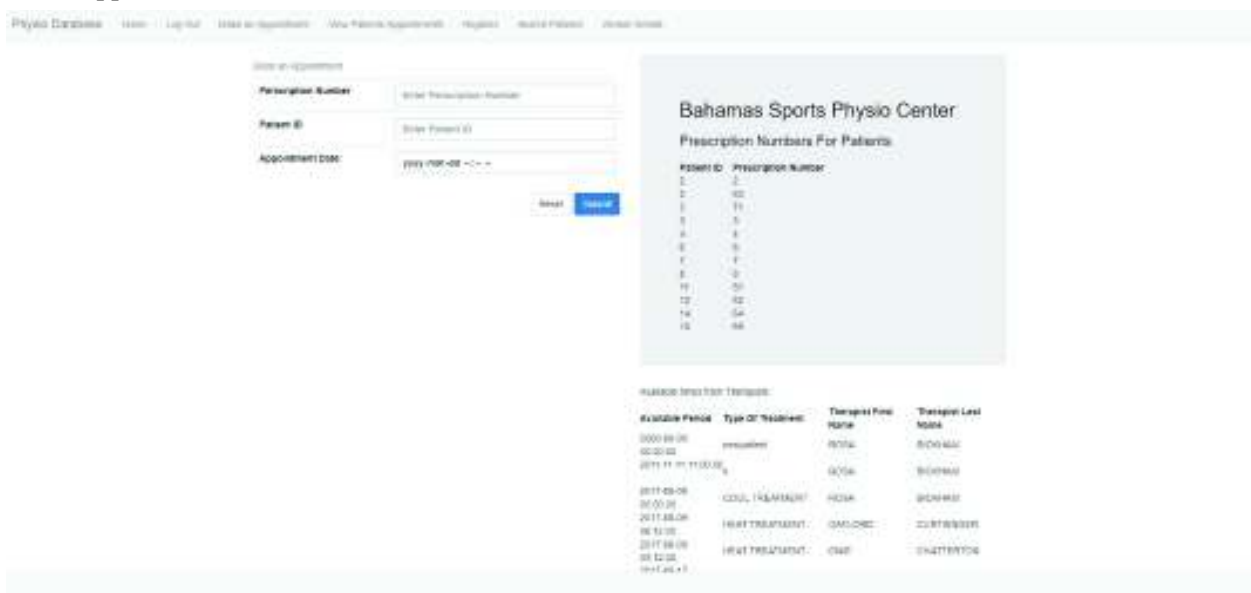
Receptionist

Receptionist HomePage:



-The receptionist will be greeted by this page once successfully logged in, and from here he/she has many other option in the header.

Make Appointment:



-The receptionist can make an appointment for a patient, by entering prescription number, the patient ID and choosing from the available time slots.

BSPC Database System

View/Modify Appointments:

The screenshot shows the 'View/Modify Appointments' page. The navigation bar includes 'Physio Database', 'Home', 'Log Out', 'Make an Appointment', 'View Patients Appointments', 'Register', 'Search Patients', and 'Admin Control'. The main content area has a left sidebar with 'Enter Patient ID' (with a text input and a 'Submit' button), 'Delete Appointment' (with a text input and a 'Submit' button), and 'For Patient:' (with a text input and a 'Submit' button). The main panel on the right displays 'Bahamas Sports Physio Center' and 'Here are the appointments for'.

-The receptionist at this page can look up a patient's appointments OR can delete an appointment entry by entering the proper fields.

Register Patient:

The screenshot shows the 'Register Patient' page. The navigation bar is the same as the previous page. The main content area has a left sidebar with 'Bahamas Sports Physio Center' and 'Here you can register a new patient. Thank you very much!'. The main panel on the right contains a registration form with fields for 'First Name', 'Last Name', 'Phone Number', 'Address', and 'Age', each with a text input. At the bottom of the form is a 'Submit' button with a 'Register' label.

-The receptionist can register a new patient on this page once entering all the necessary fields and a unique ID will be given to the patient.

BSPC Database System

Search Patients:

The screenshot shows the 'Physio Database' application. At the top is a navigation bar with links: Home, Log Out, Make an Appointment, View Patients Appointments, Register, Search Patients, and Admin Patients. The main content area has a header 'Bahamas Sports Physio Center' and a sub-header 'Search For Patient'. To the right is a search form with a text input labeled 'First Name' and a 'Search' button. Below the search form is a box labeled 'Search Results:' containing the text 'No Patients Found'.

-Here the receptionist can search up the patient and patient details such as name, ID, and records will be shown.

Workers List:

The screenshot shows the 'Physio Database' application with the 'List of all workers' section. It displays a table with the following data:

First Name	Last Name	ID	Center
ADRIAN	COOPER	1001	BSPC
ALONSO	ALONSO	2001	BSPC
ANDREW	ALONSO	3001	BSPC
BONNY	SMITH	2002	BSPC
BETHAN	LI	3002	BSPC
CHRY	PHILLIPS	2003	BSPC
COO	PHILLIPS	2003	BSPC
DOUGLAS	LI	2004	BSPC
ELSA	POWELL	2005	BSPC
GALE	WILLIAMS	2006	BSPC
JOHN	WILLIAMS	2007	BSPC
JOHN	WILLIAMS	2008	BSPC
JOHN	WILLIAMS	2009	BSPC
JOHN	WILLIAMS	2010	BSPC
JOHN	WILLIAMS	2011	BSPC
JOHN	WILLIAMS	2012	BSPC
JOHN	WILLIAMS	2013	BSPC
JOHN	WILLIAMS	2014	BSPC
JOHN	WILLIAMS	2015	BSPC
JOHN	WILLIAMS	2016	BSPC
JOHN	WILLIAMS	2017	BSPC
JOHN	WILLIAMS	2018	BSPC
JOHN	WILLIAMS	2019	BSPC
JOHN	WILLIAMS	2020	BSPC
JOHN	WILLIAMS	2021	BSPC
JOHN	WILLIAMS	2022	BSPC
JOHN	WILLIAMS	2023	BSPC
JOHN	WILLIAMS	2024	BSPC
JOHN	WILLIAMS	2025	BSPC
JOHN	WILLIAMS	2026	BSPC
JOHN	WILLIAMS	2027	BSPC
JOHN	WILLIAMS	2028	BSPC
JOHN	WILLIAMS	2029	BSPC
JOHN	WILLIAMS	2030	BSPC
JOHN	WILLIAMS	2031	BSPC
JOHN	WILLIAMS	2032	BSPC
JOHN	WILLIAMS	2033	BSPC
JOHN	WILLIAMS	2034	BSPC
JOHN	WILLIAMS	2035	BSPC
JOHN	WILLIAMS	2036	BSPC
JOHN	WILLIAMS	2037	BSPC
JOHN	WILLIAMS	2038	BSPC
JOHN	WILLIAMS	2039	BSPC
JOHN	WILLIAMS	2040	BSPC
JOHN	WILLIAMS	2041	BSPC
JOHN	WILLIAMS	2042	BSPC
JOHN	WILLIAMS	2043	BSPC
JOHN	WILLIAMS	2044	BSPC
JOHN	WILLIAMS	2045	BSPC
JOHN	WILLIAMS	2046	BSPC
JOHN	WILLIAMS	2047	BSPC
JOHN	WILLIAMS	2048	BSPC
JOHN	WILLIAMS	2049	BSPC
JOHN	WILLIAMS	2050	BSPC

-The receptionist has a list of all workers in the the center

Doctor

Doctor Home Page:



-Doctor will be greeted with this home page when logged in

Doctor Search:



-The doctor can look up patient records from this page with the correct first name entered

The doctor also has a list of all the workers in the center and look exactly like the one from receptionist.

Doctor Prescription:

BSPC Database System

The screenshot shows the 'Prescription' form in the BSPC Database System. The form is titled 'Prescription' and is located on the left side of the page. It contains several input fields: 'Doctor ID', 'Patient ID', 'Center', 'Diagnosis', and 'Notes'. Each field has a placeholder text indicating the expected input format. For example, 'Doctor ID' has a placeholder 'Enter Doctor ID'. To the right of the form is a large light blue box with the text 'Bahamas Sports Physio Center' and a sub-header 'Enter your available time'. At the bottom of the form are two buttons: 'Reset' and 'Submit'.

-The doctor enters all the information into the field; such as doctor ID, patient ID, the center, diagnosis and a short description and it will return a unique prescription number that the patient will use to make an appointment with a therapist.

-Doctor Availability

The screenshot shows the 'Doctor Availability' form in the BSPC Database System. The form is titled 'Doctor Availability' and is located on the left side of the page. It contains several input fields: 'Work ID', 'Available Treatment Date', 'Treatment Type', and 'Equipment Used'. Each field has a placeholder text indicating the expected input format. For example, 'Work ID' has a placeholder 'Enter Doctor ID'. To the right of the form is a large light blue box with the text 'Bahamas Sports Physio Center' and a sub-header 'Enter your available time'. At the bottom of the form are two buttons: 'Reset' and 'Submit'.

-The doctor will enter information into the system regarding treatments and time they can meet with patients. This will then update to the patient and receptionist view and they can then choose a time slot.

BSPC Database System

Nurse

List of Workers:

Register Database	Home	Log Out	Make an Appointment	View Patients Appointments	Register	View Patients	Delete Patients
-----------------------------------	----------------------	-------------------------	-------------------------------------	--	--------------------------	-------------------------------	---------------------------------

List of all workers

First Name	Last Name	ID	Center
ADAM	COHEN	1001	BSPC
ALON	ALON	2002	BSPC
ALON	ALON	3003	BSPC
ALON	ALON	4004	BSPC
ALON	ALON	5005	BSPC
ALON	ALON	6006	BSPC
ALON	ALON	7007	BSPC
ALON	ALON	8008	BSPC
ALON	ALON	9009	BSPC
ALON	ALON	1000	BSPC
ALON	ALON	1101	BSPC
ALON	ALON	1202	BSPC
ALON	ALON	1303	BSPC
ALON	ALON	1404	BSPC
ALON	ALON	1505	BSPC
ALON	ALON	1606	BSPC
ALON	ALON	1707	BSPC
ALON	ALON	1808	BSPC
ALON	ALON	1909	BSPC
ALON	ALON	2000	BSPC
ALON	ALON	2101	BSPC
ALON	ALON	2202	BSPC
ALON	ALON	2303	BSPC
ALON	ALON	2404	BSPC
ALON	ALON	2505	BSPC
ALON	ALON	2606	BSPC
ALON	ALON	2707	BSPC
ALON	ALON	2808	BSPC
ALON	ALON	2909	BSPC
ALON	ALON	3000	BSPC
ALON	ALON	3101	BSPC
ALON	ALON	3202	BSPC
ALON	ALON	3303	BSPC
ALON	ALON	3404	BSPC
ALON	ALON	3505	BSPC
ALON	ALON	3606	BSPC
ALON	ALON	3707	BSPC
ALON	ALON	3808	BSPC
ALON	ALON	3909	BSPC
ALON	ALON	4000	BSPC
ALON	ALON	4101	BSPC
ALON	ALON	4202	BSPC
ALON	ALON	4303	BSPC
ALON	ALON	4404	BSPC
ALON	ALON	4505	BSPC
ALON	ALON	4606	BSPC
ALON	ALON	4707	BSPC
ALON	ALON	4808	BSPC
ALON	ALON	4909	BSPC
ALON	ALON	5000	BSPC
ALON	ALON	5101	BSPC
ALON	ALON	5202	BSPC
ALON	ALON	5303	BSPC
ALON	ALON	5404	BSPC
ALON	ALON	5505	BSPC
ALON	ALON	5606	BSPC
ALON	ALON	5707	BSPC
ALON	ALON	5808	BSPC
ALON	ALON	5909	BSPC
ALON	ALON	6000	BSPC
ALON	ALON	6101	BSPC
ALON	ALON	6202	BSPC
ALON	ALON	6303	BSPC
ALON	ALON	6404	BSPC
ALON	ALON	6505	BSPC
ALON	ALON	6606	BSPC
ALON	ALON	6707	BSPC
ALON	ALON	6808	BSPC
ALON	ALON	6909	BSPC
ALON	ALON	7000	BSPC
ALON	ALON	7101	BSPC
ALON	ALON	7202	BSPC
ALON	ALON	7303	BSPC
ALON	ALON	7404	BSPC
ALON	ALON	7505	BSPC
ALON	ALON	7606	BSPC
ALON	ALON	7707	BSPC
ALON	ALON	7808	BSPC
ALON	ALON	7909	BSPC
ALON	ALON	8000	BSPC
ALON	ALON	8101	BSPC
ALON	ALON	8202	BSPC
ALON	ALON	8303	BSPC
ALON	ALON	8404	BSPC
ALON	ALON	8505	BSPC
ALON	ALON	8606	BSPC
ALON	ALON	8707	BSPC
ALON	ALON	8808	BSPC
ALON	ALON	8909	BSPC
ALON	ALON	9000	BSPC
ALON	ALON	9101	BSPC
ALON	ALON	9202	BSPC
ALON	ALON	9303	BSPC
ALON	ALON	9404	BSPC
ALON	ALON	9505	BSPC
ALON	ALON	9606	BSPC
ALON	ALON	9707	BSPC
ALON	ALON	9808	BSPC
ALON	ALON	9909	BSPC
ALON	ALON	10000	BSPC

-The nurse will have limited options in this system, they will only be able to access the list of workers

Therapist

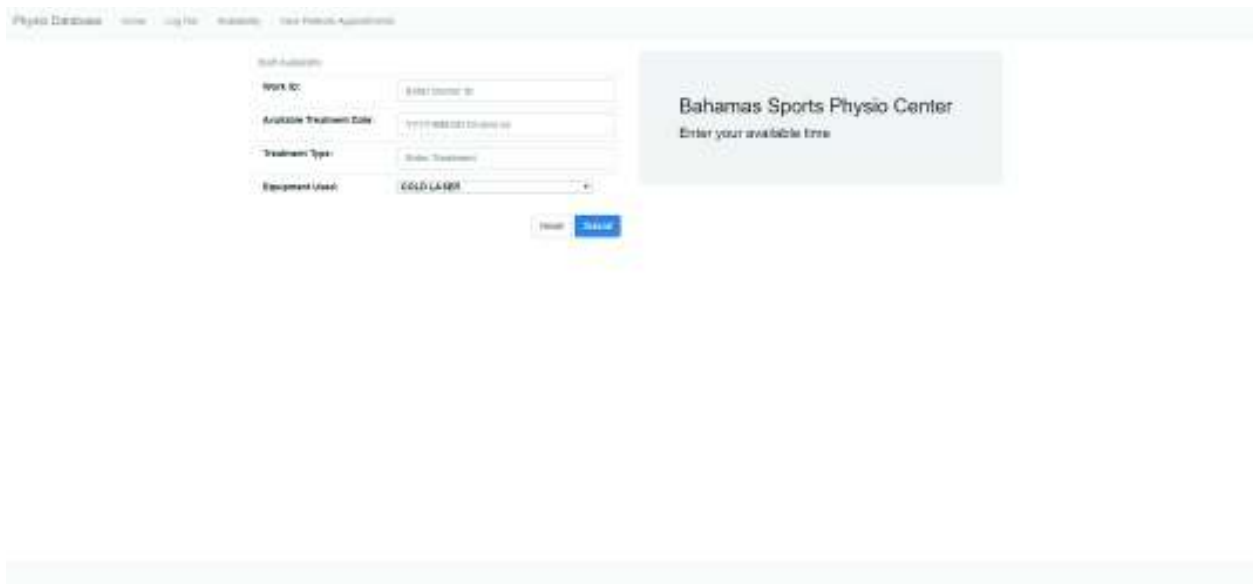
Appointment View



The screenshot shows the 'Appointment View' page for a therapist. At the top, there is a navigation bar with links: 'Physio Database', 'Home', 'Log Out', 'Availability', and 'View Patients Appointments'. Below the navigation bar, there is a light blue box with the text: 'Bahamas Sports Physio Center', 'ROSA BICKHAM', and 'Here are your appointments'. The rest of the page is empty.

-The therapist will be able to access their appointments that they have with the patients

Availability Entry:



The screenshot shows the 'Availability Entry' page for a therapist. At the top, there is a navigation bar with links: 'Physio Database', 'Home', 'Log Out', 'Availability', and 'View Patients Appointments'. Below the navigation bar, there is a form with the following fields: 'Work ID:' (with a text input field containing 'BANK STREET 10'), 'Available Treatment Code:' (with a text input field containing 'TYPHOID TREATMENT'), 'Treatment Type:' (with a dropdown menu showing 'Other Treatment'), and 'Equipment Used:' (with a dropdown menu showing 'COLD LASER'). There are 'Cancel' and 'Submit' buttons at the bottom of the form. To the right of the form, there is a light blue box with the text: 'Bahamas Sports Physio Center' and 'Enter your available time'.

-The therapist can enter the times he or she is available for which type of treatment they will give and the equipment they will use. Once entered the patient will be able to select the newly entered time slot.

BSPC Database System

DDL Code

```

/*****
CREATE TABLE worker(
    ID            INT(9) PRIMARY KEY,
    F_NAME        VARCHAR(40),
    L_NAME        VARCHAR(40),
    ADDRESS       VARCHAR(255),
    PHONE         VARCHAR(20),
    CENTER        VARCHAR(255));
*****/

CREATE TABLE RECEPTIONIST(
    ID            INT(9) PRIMARY KEY,
    FOREIGN KEY (ID) REFERENCES worker(ID)
    ON DELETE CASCADE ON UPDATE CASCADE);
*****/

CREATE TABLE NURSE(
    ID            INT(9) PRIMARY KEY,
    FOREIGN KEY (ID) REFERENCES worker(ID)
    ON DELETE CASCADE ON UPDATE CASCADE);
*****/

CREATE TABLE THERAPIST(
    ID            INT(9) PRIMARY KEY,
    YEARS_EXPERIENCE    INT(3),
    FOREIGN KEY (ID) REFERENCES worker(ID)
    ON DELETE CASCADE ON UPDATE CASCADE);
*****/

CREATE TABLE DOCTOR(
    ID            INT(9) PRIMARY KEY,
    YEARS_EXPERIENCE    INT(3),
    FOREIGN KEY (ID) REFERENCES worker(ID)
    ON DELETE CASCADE ON UPDATE CASCADE);
*****/

CREATE TABLE TIMETABLE(
    PERIOD        DATETIME PRIMARY KEY #RECORDS THE AVAILABLE PERIODS);
*****/

CREATE TABLE STAFF_INFO(
    AVAILABLE_TIME    DATETIME PRIMARY KEY,
    THERA_ID          INT(9),
    DOC_ID            INT(9),
    NURSE_ID          INT(9),
    FOREIGN KEY(AVAILABLE_TIME) REFERENCES TIMETABLE(PERIOD)
    ON DELETE CASCADE ON UPDATE CASCADE,

```

BSPC Database System

```
FOREIGN KEY(THERA_ID) REFERENCES THERAPIST(ID)
ON DELETE CASCADE ON UPDATE CASCADE,
FOREIGN KEY(DOC_ID) REFERENCES DOCTOR(ID)
ON DELETE CASCADE ON UPDATE CASCADE,
FOREIGN KEY(NURSE_ID) REFERENCES NURSE(ID)
ON DELETE CASCADE ON UPDATE CASCADE);
/*****/
CREATE TABLE patient_record(
    P_ID          INT(9) AUTO_INCREMENT,
    APPOINTMENT_PERIOD  DATETIME,
    PRIMARY KEY(P_ID, APPOINTMENT_PERIOD),
    FOREIGN KEY(APPOINTMENT_PERIOD) REFERENCES PROVIDE(PERIOD)
    ON DELETE CASCADE ON UPDATE CASCADE);
/*****/
CREATE TABLE PATIENT(
    P_ID          INT(9) PRIMARY KEY AUTO_INCREMENT,
    F_NAME        VARCHAR(40),
    L_NAME        VARCHAR(40),
    ADDRESS        VARCHAR(255),
    PHONE         VARCHAR(20),
    AGE           INT(9),
    FOREIGN KEY(P_ID) REFERENCES patient_record(P_ID)
    ON DELETE CASCADE ON UPDATE CASCADE);
/*****/
CREATE TABLE PRESCRIPTION(
    NUMBER        INT(9) PRIMARY KEY,
    DOCTOR_DESCRIPTION  VARCHAR(255),
    DIAGNOSIS     VARCHAR(255),
    CENTER        VARCHAR(255),
    FOREIGN KEY (NUMBER) REFERENCES WRITES(NUMBER)
    ON DELETE CASCADE ON UPDATE CASCADE);
/*****/
CREATE TABLE APPOINTMENT(
    PRESCR_N      INT(9),
    PERIOD        DATETIME,
    PRIMARY KEY(PRESCR_N, PERIOD)
    FOREIGN KEY(PRESCR_N) REFERENCES PRESCRIPTION(NUMBER)
    ON DELETE CASCADE ON UPDATE CASCADE,
    FOREIGN KEY(PERIOD) REFERENCES PROVIDE(PERIOD)
    ON DELETE CASCADE ON UPDATE CASCADE);
/*****/
```

BSPC Database System

```
CREATE TABLE PAYMENT(
    METHOD      ENUM("CASH","CARD","CHEQUE"),
    PERIOD      DATETIME UNIQUE,
    AMOUNT      DOUBLE(9,2),
    PRIMARY KEY(PERIOD, AMOUNT),
    FOREIGN KEY(PERIOD) REFERENCES APPOINTMENT(PERIOD)
    ON DELETE CASCADE ON UPDATE CASCADE);
/*****/

CREATE TABLE CARD_AGENCY(
    NAME        VARCHAR(255)

/*****/

CREATE TABLE TREATMENT(
    PERIOD      DATETIME,
    TYPE        VARCHAR(255),
    PRIMARY KEY(PERIOD, TYPE)
    FOREIGN KEY(PERIOD) REFERENCES TIMETABLE(PERIOD)
    ON DELETE CASCADE ON UPDATE CASCADE);
/*****/

CREATE TABLE EQUIPMENT(
    NAME        VARCHAR(255) PRIMARY KEY);

/*****RELATIONS*****/
/

CREATE TABLE STAFF_ACCESS(
    R_ID        INT(9),
    AVAILABLE_TIME  DATETIME,
    FOREIGN KEY (R_ID) REFERENCES RECEPTIONIST (ID)
    ON DELETE CASCADE ON UPDATE CASCADE,
    FOREIGN KEY(AVAILABLE_TIME) REFERENCES STAFF_INFO(AVAILABLE_TIME)
    ON DELETE CASCADE ON UPDATE CASCADE);

/*****/

CREATE TABLE REGISTER(
    REGISTRATION_N  INT(9) PRIMARY KEY AUTO_INCREMENT,
    R_ID            INT(9),
    P_ID            INT (9),
    FOREIGN KEY (R_ID) REFERENCES RECEPTIONIST (ID)
    ON DELETE CASCADE ON UPDATE CASCADE,
    FOREIGN KEY (P_ID) REFERENCES PATIENT(P_ID)
    ON DELETE CASCADE ON UPDATE CASCADE);
```

BSPC Database System

/******

```
CREATE TABLE PATIENT_ACCESS(  
  R_ID          INT(9),  
  P_ID          INT(9),  
  DOC_ID        INT(9),  
  NURSE_ID      INT(9),  
  FOREIGN KEY (R_ID) REFERENCES RECEPTIONIST (ID)  
  ON DELETE CASCADE ON UPDATE CASCADE,  
  FOREIGN KEY (P_ID) REFERENCES PATIENT_RECORD(P_ID)  
  ON DELETE CASCADE ON UPDATE CASCADE,  
  FOREIGN KEY (DOC_ID) REFERENCES DOCTOR(ID)  
  ON DELETE CASCADE, ON UPDATE CASCADE,  
  FOREIGN KEY (NURSE_ID) REFERENCES NURSE(ID)  
  ON DELETE CASCADE, ON UPDATE CASCADE);
```

/******

```
CREATE TABLE RECEIVE(  
  P_ID          INT(9),  
  PERIOD        DATETIME,  
  TYPE          VARCHAR(255),  
  PRIMARY KEY (P_ID, PERIOD),  
  FOREIGN KEY (P_ID) REFERENCES PATIENT (P_ID)  
  ON DELETE CASCADE ON UPDATE CASCADE,  
  FOREIGN KEY (PERIOD, TYPE) REFERENCES PROVIDE(PERIOD, TYPE)  
  ON DELETE CASCADE ON UPDATE CASCADE);
```

/******

```
CREATE TABLE PROVIDE(  
  THERA_ID      INT(9),  
  PERIOD        DATETIME,  
  TYPE          VARCHAR(255),  
  PRIMARY KEY (THERA_ID, PERIOD, TYPE),  
  FOREIGN KEY (THERA_ID) REFERENCES THERAPIST(ID)  
  ON DELETE CASCADE ON UPDATE CASCADE,  
  FOREIGN KEY (PERIOD, TYPE) REFERENCES TREATMENT(PERIOD, TYPE)  
  ON DELETE CASCADE ON UPDATE CASCADE);
```

/******

```
CREATE TABLE UPDATES(  
  R_ID          INT(9),  
  APPOINTMENT_PERIOD  DATETIME,  
  PRESCR_N      INT(9),  
  FOREIGN KEY (R_ID) REFERENCES RECEPTIONIST (ID)  
  ON DELETE CASCADE ON UPDATE CASCADE,
```

BSPC Database System

```
FOREIGN KEY (APPOINTMENT_PERIOD, PRESCR_N) REFERENCES APPOINTMENT(PERIOD,  
PRESCR_N)
```

```
ON DELETE CASCADE ON UPDATE CASCADE);
```

```
/******
```

```
CREATE TABLE USES(
```

```
EQUIP_NAME      VARCHAR(255),
```

```
TREAT_PERIOD    DATETIME,
```

```
TREAT_TYPE VARCHAR(255),
```

```
PRIMARY KEY(EQUIP_NAME, TREAT_PERIOD),
```

```
FOREIGN KEY (EQUIP_NAME) REFERENCES EQUIPMENT (NAME)
```

```
ON DELETE CASCADE ON UPDATE CASCADE,
```

```
FOREIGN KEY (TREAT_PERIOD, TREAT_TYPE) REFERENCES TREATMENT(PERIOD, TYPE)
```

```
ON DELETE CASCADE ON UPDATE CASCADE);
```

```
/******
```

```
CREATE TABLE AVAILABLE_AT(
```

```
PERIOD          DATETIME PRIMARY KEY,
```

```
DOC_ID          INT(9),
```

```
THERA_ID        INT(9),
```

```
NURSE_ID        INT(9),
```

```
FOREIGN KEY (PERIOD) REFERENCES TIMETABLE(PERIOD)
```

```
ON DELETE CASCADE ON UPDATE CASCADE,
```

```
FOREIGN KEY (DOC_ID) REFERENCES DOCTOR(ID)
```

```
ON DELETE CASCADE ON UPDATE CASCADE,
```

```
FOREIGN KEY(THERA_ID) REFERENCES THERAPIST(ID)
```

```
ON DELETE CASCADE ON UPDATE CASCADE,
```

```
FOREIGN KEY (NURSE_ID) REFERENCES NURSE(ID)
```

```
ON DELETE CASCADE ON UPDATE CASCADE);
```

```
/******
```

```
CREATE TABLE VERIFY(
```

```
VERIFICATION_PERIOD  ENUM("21:00:00") DEFAULT "21:00:00",
```

```
CARD_AGENCY_NAME     VARCHAR(255),
```

```
PAY_AMOUNT           DOUBLE(9,2),
```

```
PAY_PERIOD           DATETIME,
```

```
PRIMARY KEY(PAY_PERIOD, PAY_AMOUNT),
```

```
FOREIGN KEY (PAY_AMOUNT,PAY_PERIOD) REFERENCES PAYMENT(AMOUNT, PERIOD)
```

```
ON DELETE CASCADE ON UPDATE CASCADE,
```

```
FOREIGN KEY (CARD_AGENCY_NAME) REFERENCES CARD_AGENCY(NAME)
```

```
ON DELETE CASCADE ON UPDATE CASCADE);
```

```
/******
```

```
CREATE TABLE PAY(
```

```
P_ID                INT(9),
```

```
AMOUNT              DOUBLE(9,2),
```

```
PERIOD              DATETIME PRIMARY KEY,
```

BSPC Database System

```
FOREIGN KEY (P_ID) REFERENCES PATIENT(P_ID)
ON DELETE CASCADE ON UPDATE CASCADE,
FOREIGN KEY (AMOUNT,PERIOD) REFERENCES PAYMENT(AMOUNT,PERIOD)
ON DELETE CASCADE ON UPDATE CASCADE);
/*****/
CREATE TABLE MAKE(
P_ID          INT(9),
PRESCR_N      INT(9),
PERIOD        DATETIME,
PRIMARY KEY(PRESCR_N),
FOREIGN KEY(P_ID) REFERENCES PATIENT(P_ID)
ON DELETE CASCADE ON UPDATE CASCADE,
FOREIGN KEY(PRESCR_N, PERIOD) REFERENCES APPOINTMENT (PRESCR_N, PERIOD)
ON DELETE CASCADE ON UPDATE CASCADE);
/*****/
CREATE TABLE TAKE(
P_ID          INT(9),
NUMBER        INT(9) UNIQUE,
PRIMARY KEY (P_ID, NUMBER),
FOREIGN KEY (P_ID) REFERENCES PATIENT(P_ID)
ON DELETE CASCADE ON UPDATE CASCADE,
FOREIGN KEY(NUMBER) REFERENCES PRESCRIPTION(NUMBER)
ON DELETE CASCADE ON UPDATE CASCADE);
/*****/
CREATE TABLE WRITES(
DOC_ID        INT(9),
NUMBER        INT(9) NOT NULL AUTO_INCREMENT,
PRIMARY KEY( NUMBER),
FOREIGN KEY (DOC_ID) REFERENCES DOCTOR(ID)
ON DELETE CASCADE ON UPDATE CASCADE);
/*****/
```

Contributions(tbd)

DESIGN OF E/R DADA MODEL CONTRIBUTOR(S):;

- MAJED ALKHOURI
- MEHAL PATEL
- PETER CHEN

CONVERSION INTO RELATIONAL MODEL CONTRIBUTOR(S):

- MEHAL PATEL
- PETER CHEN

USER INTERFACE CONTRIBUTOR(S):

- ANDY NGUYEN
- MEHAL PATEL
- DINH DUC BUI
- PETER CHEN

USER GUIDE CONTRIBUTOR(S):

- MEHALPATEL

REPORTS/EXTRA REPORTS CONTRIBUTOR(S):

- MAJED ALKHOURI

DDL CODE CONTRIBUTOR(S):

- DINH DUC BUI
- MAJED ALKHOURI
- PETER CHEN

References

Front page image

http://www.cheshirephysio.co.uk/wp-content/uploads/2015/11/icon_616.png