COMP1204 Data Management Coursework1

1. Physical ER Diagram

* User data: user\_name, phone\_number, email,gender,hei height and weight

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| --- | --- | --- |
| Attributes | Data types |  |
| User\_id | int | unique |
| gender | ENUM(‘male’,;female) | NOT NULL |
| name | Varchar(15) |  |
| Phone\_num | Int(10) |  |
| email | Varchar(250) |  |
| height | int | cm |
| weight | int | kg |

* User History: history id,last\_login\_date, what menus they access, how long they stay in the menu

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| --- | --- | --- |
| Attributes | Data types |  |
| User\_id | int |  |
| History\_id | Varchar(250) | unique |
| Last login date | date |  |
| Apps\_accessed | Varchar(50) |  |
| Time\_start | datetime |  |
| Time\_end | datetime |  |
| Time interval | datetime | Difference between start and ends |

* Heart Rate: date, time interval, pulses in seconds

|  |  |  |
| --- | --- | --- |
| Attributes | Data types |  |
| User\_id | int | unique |
| Pulse\_in\_min | int | bpm |
| Time\_interval | datetime | Every time slots:1-2am,2-3am, …,11pm-12am |
| effort | Varchar(50) | Maximum, hard, moderate,light, very light  Different age group have different effort |
| advice | Varchar(250) | Different effort will be given a different advice |
| Pin on 8fit Fitness Tips  Q: how many users in 20s age group have a moderate effort?  Q: How many users in 60s age group still receive a develops maximum performance and speed advice?  Q: What is the most common heart rate users have? | | |

* Exercise type: exercise type (swimming, jogging, treadmill, walking, resting, cycling, rower, stair stepper, hit, hiking, yoga, dance, Pilates, tai chi, )

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| --- | --- | --- |
| Attributes | Data types |  |
| exercise\_id | int | unique |
| Exercise\_name | Varchar(50) |  |
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|  |  |  |

* Exercise: heart\_rate,distance,pace

|  |  |  |
| --- | --- | --- |
| Attributes | Data types |  |
| exercise\_id | int |  |
| User\_id | int |  |
| Exercise\_start\_time | datetime |  |
| Exercise\_end\_time | datetime |  |
| interval | datetime | Difference between start and end |
| pace | int |  |
| distance | int | km |
| pulse | int | bpm |
| Heart rate | int | Pulse/time interval |

* User Settings: measurement unit, preferred watch face, purchased watch face, batterylife, language, location

|  |  |  |
| --- | --- | --- |
| Attributes | Data types |  |
| User\_id | int | unique |
| Measurement\_unit | Enum | Km/miles  Kg/pounds  Cm/feet |
| Preferred\_watch\_face | Varchar(50) | Image’s name |
| Purchased\_watch\_face | Varchar(50) | Image’s name |
| langauge | Varchar(50) |  |
| Location | Varchar(50) | In which country, in which city |
| Battery\_life | int |  |
| Watch batch id | int | unique |

* Watch Model: case\_size, water resistance, watch model, watch batch id

|  |  |  |
| --- | --- | --- |
| Attributes | Data types |  |
| Case\_size | int | inch |
| Water\_resistance | int | Up to 300m |
| Watch\_model | Vachar(50) |  |
| Watch\_brand | Varchar(50) | Apple, Samsung |
| Watch batch id | int | unique |

* Blood Oxygen Level: history of user’s oxygen saturation level

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| --- | --- | --- |
| Attributes | Data types |  |
| User\_id | int | unique |
| Blood\_Oxygen level | int | As in the table below |
| Time\_interval | datetime | Every time slots:1-2am, …,11pm-12am |
| State | Varchar(50) | Normal, concerning, low,.. |
|  | | |

* Step Count: date, time, step count,distance, flight climbed

|  |  |  |
| --- | --- | --- |
| Attributes | Data types |  |
| User\_id | int | unique |
| Time\_interval | datetime | Starttime endtime datecount |
| Step | int |  |
| distance | int | km |
| Flight\_climbed | int |  |

* Alarm: date, days, time, repeat, sound, //activity

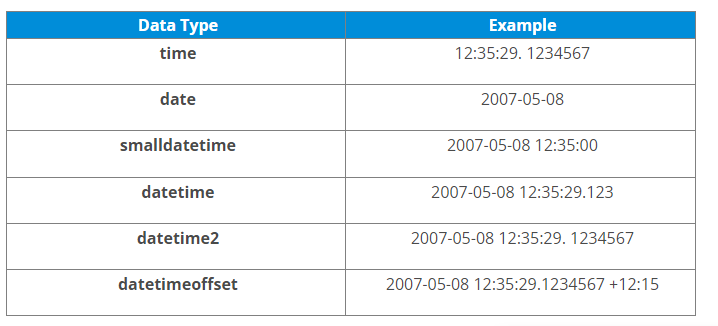
|  |  |  |
| --- | --- | --- |
| Attributes | Data types |  |
| User\_id | int | unique |
| Alarm\_day | varchar | Mon, Tue, Wed,.. |
| Repeat\_mode | varchar | Weekly, Daily, Once |
| Alarm\_time | time | A specified time eg:6:00am, 1:10pm |
| Alarm\_sound | Varchar(50) | The name of the sound:  ‘Bell Ring’ |
| Alarm\_name | Varchar(50) |  |
| Alarm\_description | Varchar(250) |  |

* Calorie Counter: date, time, calorie count

|  |  |  |
| --- | --- | --- |
| Attributes | Data types |  |
| User\_id | int | unique |
| Time\_interval | datetime | Starttime endtime datecount |
| calories | int |  |
| distance | int | km |
| Flight\_climbed | int |  |
|  |  |  |
|  |  |  |

* Sleep Count: date, time, blood oxygen level, heart rate, time asleep and sleeping respiratory rate
* Sleep type: sleep type(light sleep, deep sleep, REM sleep)
* Activity: exercise, calories, heart rate, step count,date
* LocationServices: city, country, street,postcode, date, time, location services
* SongList: song\_id, song\_name, song\_singer, song\_time\_interval, repeat\_mode, isFavourite(Boolean)

1. Database Normalization Explanation \*1NF,2NF,3NF, BNF, 4NF
2. SQL date time format



1. Every Table’s Primary Key

|  |  |  |
| --- | --- | --- |
| Class | Primary Key | Example |
| User | userID | 001 |
| UserHistory | historyID | U1H110323  U+ “UserID”+H + “Date” |
| UserSettings | userSettingsID | US1 |
| WatchModel | WatchBatchID | W001 |
| exerciseType | exerID | E001 |
| exerciseRecord | exerRecordID | U1E110323  U+ “UserID”+ E+ “Date” |
| heartRateRecord | heartRateRecordID | U1HR110323  U+ “UserID”+ HR+ “Date” |
| stepCounterRecord | stepCounterRecordID | U1S110323  U+ “UserID”+ S+ “Date” |
| caloriesCounterRecord | caloriesCounterRecordID | U1C120323  U+ “UserID”+ C+ “Date” |
| sleepRecord | sleepRecordID | U1SL110323  U+ “UserID”+ SL+ “Date” |
| sleepType | sleepID | SL001 |
| bloodOxygenLevelRecord | bloodOxygenLevelRecordID | U1B120323  U+ “UserID”+ B+ “Date” |
| AlarmSettings | alarmID | U1A001  U+ “UserID” +A + NUM |
| Playlist | playlistID |  |
| Song | songID |  |
| LocationRecord | locationRecordID |  |

1. Create Table Script \*CREATE
2. Create derivative attributes
3. Insert at least 10 dummy data and provide insertion queries \*INSERT
4. Create a min of 30 “Analytical Questions and Queries” \*SELECT,JOIN,GROUP BY, ORDER BY
5. Scenario1 – explain in detail in your report and write the queries\*MERGING
6. Scenario2 – explain in detail in your report and write the queries \*SPLIT