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**UNIVERSITY OF WESTMINSTER**

**5COSC020C DATABASE SYSTEMS**

**Coursework**

**Part A + B**

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Part A: Conceptual EERD

QUESTION 2: ENTITIES

|  |  |
| --- | --- |
| Entity name | Brief Explanation |
| Person | This represents the people involved in the Racketminster scheme. |
| Staff | This represents all the staff members involved in operating the Racketminster scheme. |
| Player | This represents all the players participating in this scheme. |
| Instructor | This represents all the instructors who are supervising supervised sessions. |
| Caretaker | This represents all the staff members who are responsible for maintenance of Racketminster scheme’s property. |
| Park | This represents all the parks belonging to the Racketminster scheme. |
| Court | This represents all the courts belonging to the Racketminster scheme. |
| Tennis | This represents all the tennis courts belong to Racketminster scheme. |
| Pickleball | This represents all the pickleball courts belong to Racketminster scheme. |
| Equipment | This represents all the equipments belong to each court in the Racketminster scheme. |
| Maintenance\_record | This represents all the records of maintenance regarding Racketminster scheme’s property. |
| Session | This represents all the playing sessions on courts. |
| Sup\_Session | This represents all the instructor supervising sessions of Racketminster scheme. |
| Per\_Tr | This represents a personal training session which is a one to one session with an instructor. |
| Grp\_Tr | This represents a supervised group session which is a multi-player involving session with up to two instructors. |
| Fitness\_Play | This represents sessions where players get to both exercise and learn how to play. |
| Grp\_Coach | This represents group coaching sessions that provide more structured learning lessons at different levels. |
| Social\_Fun | This represents sessions where players get to socialise with each other while an instructor oversees the session. |
| Unsup\_Session | This represents all the sessions of Racketminster scheme where no supervision by any instructor. |
| Singles | This represents two player session where two players are scheduled to play in a singles match. |
| Doubles | This represents four player session where four players are scheduled to play in a match. |
| Booking | This represents bookings made by players for each session. |
| Sin\_booking | This represents bookings made by players for each supervised session. |
| Block\_booking | This represents bookings made by players for unsupervised sessions. |

QUESTION 3: SPECIALISATIONS

|  |  |  |
| --- | --- | --- |
| General entity | Specialised entity | Brief explanation |
| Persons | Staff | This represents all the staff members involved in operating the Racketminster scheme. |
|  | Player | This represents all the players participating in this scheme. |
| Staff | Instructor | This represents all the instructors who are supervising supervised sessions. |
|  | Caretaker | This represents all the staff members who are responsible for maintenance of Racketminster scheme’s property. |
| Court | Tennis | A court equipped for playing tennis. |
|  | Pickleball | A court equipped for playing Pickleball. |
| Booking | Sin\_booking | Bookings made by players for each supervised session. |
|  | Block\_booking | Bookings made by players for unsupervised sessions. |
| Session | Sup\_Session | All the sessions that are supervised by instructors. |
|  | Unsup\_Session | All the sessions that are not supervised by any instructors. |
| Sup\_Session | Per\_Tr | This represents a one to one session with an instructor. |
|  | Grp\_Tr | This represents multi-player involving sessions with up to two instructors. |
| Grp\_Tr | Fitness\_Play | This represents sessions where players get to both exercise and learn how to play. |
|  | Grp\_Coach | This represents sessions providing more  structured learning lessons at different levels. |
|  | Social\_Fun | This represents sessions where players get to socialise with each other while an instructor oversees the session. |
| Unsup\_Session | Singles | This represents sessions where two players are scheduled to play in a singles match. |
|  | Doubles | This represents sessions where four players are scheduled to play in a match. |

QUESTION 4: RELATIONSHIPS & MULTIPLICITIES

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Entity name | Multiplicity | Relationship | Multiplicity | Entity name | Brief justifications for the multiplicity  (4 statements for each relationship) |
| Park | 1..\* | has | 1..1 | Court | * One Park can have one court. * One Park can have many courts. * One Court could have minimum of one park. * One Court could have maximum of one park. |
| Court | 1..1 | Is maintained by | 1..\* | Maintenance  Record | * I assume one maintenance record may have one or more court maintenance records. * I assume one maintenance record may have one or more equipment maintenance records. |
| Court | 1..\* | possesses | 1..1 | Equipment | * One court must have at least one piece of equipment. * One court may have more pieces of equipments. * One piece of equipment could only belong to a minimum of one court. * One piece of equipment could only belong to a maximum of one court. |
| Equipment | 1..\* | is maintained by | 1..1 | Maintenance  Record | * Each piece of equipment must have at least one maintenance record to ensure its proper functionality. * Each maintenance record can cover multiple pieces of equipment maintained during the same instance. |
| Caretaker | 1..\* | is recorded by | 1..1 | Maintenance\_record | * Each caretaker can log many maintenance records as they maintains different courts or equipment over time. * Each maintenance record is logged by only one caretaker. |
| Court | 0..\* | schedule | 1..1 | Session | * A court may not have any scheduled sessions. * A court may have many sessions scheduled. * One session may have a minimum of one court. * One session may have a maximum of one court. |
| Session | 0…\* | has | 1..1 | Booking | * A session may not have any bookings. * A Sessions may have many bookings. * One session booking can only be related to a minimum of one session. * One session booking can only be related to a maximum of one session. |
| Player | 0..\* | place | 1..1 | Booking | * A player may not have booked any session. * A player may have booked many sessions. * One session booking could only be placed by a minimum of one player. * One session booking could only be placed by a maximum of one player. |
| Player | 0..\* | recommends | 1..1 | Player | * A player may not have recommended a new player to the Racketminster scheme. * A player may have recommended many new players to the Racketminster scheme. * One new player recommendation can have a minimum of one exciting player. * One new player recommendation can have maximum of one exciting player. |
| Instructor | 0..\* | supervise | 1..\* | Sup\_Session | * An instructor may not have any supervised sessions. * An instructor may have many supervised sessions. * A supervised session may have one instructor at supervision. * A supervised session may have many instructors at supervision. |
| Sin\_booking | 1..1 | related to | 0..\* | Sup\_Session | * Each single booking is related to a minimum of one supervised session. * Each single booking is related to maximum one supervised session. * A supervised session can have no single bookings. * A supervised session can have multiple single bookings. |
| Block\_booking | 1..1 | related to | 1..1 | Unsup\_Session | * Each block booking may relate to only one unsupervised session. * Each unsupervised session needed to be part of a block booking. |
| Unsup\_Session | 1..1 | follows | 0..\* | Unsup\_Session | * An unsupervised session must follow one past session. * An unsupervised session may not have any following sessions. * An unsupervised session may be followed by multiple sessions. |

QUESTION 5: ATTRIBUTES & PRIMARY KEYS

|  |  |  |
| --- | --- | --- |
| Entity name | Attributes for each entity (include PK) | Brief explanation |
| Person | P\_ID (PK) | Unique identity given to each personnel by Racketminster scheme. |
|  | Name | Full name of the person. |
|  | NIC\_ID | NIC identity card number of the person. |
|  | Contact\_Info | Telephone number and other contact details of the person. |
| Staff | Staff\_ID (PK) | Unique identity given to each staff member by Racketminster scheme. |
| Player | Plyr\_ID (PK) | Unique identity given to each player by Racketminster scheme. |
| Instructor | Ins\_ID (PK) | Unique identity given to each instructor by Racketminster scheme. |
|  | Specialty | Area of expertise such as tennis or pickleball |
|  | Achievements | Accomplishments earned by the instructor. |
| Caretaker | Ctkr\_ID (PK) | Unique identity given to each caretaker by Racketminster scheme. |
|  | Skills | Skills related to the maintenance. |
| Park | Park\_ID (PK) | Unique identity given to each park by Racketminster scheme. |
|  | Park\_Name | Name of the park. |
|  | Location | Address of the park. |
| Court | Court \_ID (PK) | Unique identity given to each court by Racketminster scheme. |
|  | Status | Current condition of the court like Available, Unavailable. |
|  | Plyr\_Capacity | Maximum number of players allowed to the court. |
| Tennis | TC\_ID (PK) | Unique identity given to each tennis court by Racketminster scheme. |
| Pickleball | PC\_ID (PK) | Unique identity given to each pickleball court by Racketminster scheme. |
| Equipment | Eqp\_ID (PK) | Unique identity given to each equipment by Racketminster scheme. |
|  | Eqp\_Name | Name of the equipment. |
|  | Condition | Current condition of the equipment like Useable, Unusable. |
| Maintenance\_record | M\_ID (PK) | Unique identity given to each maintenance record by Racketminster scheme. |
| Session | S\_ID (PK) | Unique identity given to each session by Racketminster scheme. |
|  | S\_Date | Date of the session. |
|  | S\_Time | Time of the session. |
|  | Duration | Length of the session. |
|  | Max\_Participants | Maximum number of participant allowed in a session. |
| Sup\_Session | Sup\_ID (PK) | Unique identity given to each supervised session by Racketminster scheme. |
| Per\_Tr | PT\_ID (PK) | Unique identity given to each personal training session by Racketminster scheme. |
| Grp\_Tr | GT\_ID (PK) | Unique identity given to each supervised group session by Racketminster scheme. |
| Fitness\_Play | FP\_ID (PK) | Unique identity given to each fitness-play session by Racketminster scheme. |
| Grp\_Coach | GC\_ID (PK) | Unique identity given to each group coaching session by Racketminster scheme. |
| Social\_Fun | SF\_ID (PK) | Unique identity given to each social-fun session by Racketminster scheme. |
| Unsup\_Session | Unsup\_ID (PK) | Unique identity given to each unsupervised session by Racketminster scheme. |
| Singles | Singles\_ID (PK) | Unique identity given to each singles (two player session) by Racketminster scheme. |
| Doubles | Doubles\_ID (PK) | Unique identity given to each doubles (four player session) by Racketminster scheme. |
| Booking | B\_ID (PK) | Unique identity given to each session bookings by Racketminster scheme. |
|  | B\_Date | Date of the booking. |
|  | B\_Time | Time of the booking. |
| Sin\_booking | Sin\_B\_ID (PK) | Unique identity given to each single session bookings by Racketminster scheme. |
| Block\_booking | Bl\_B\_ID (PK) | Unique identity given to each block bookings by Racketminster scheme. |

QUESTION 6: CONCEPTUAL EERD QUALITY & NOTATIONS

Conceptual EERD

A diagram of a computer program

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**BB Questions**

A screenshot of a video game

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**Assumptions**

* I assume that ‘w2084455\_Person’ named generalized entity will help to identify those who belong to Racketminster scheme and those who do not.

Part B: Logical ERD

QUESTION 7: MAPPING CONCEPTUAL EERD TO LOGICAL ERD

