**Database Report**

1. **Part 1 : Database schema:** 
   * + - The last name and first name data type of employee and patient is VARCHAR(20) since we think they are not likely to exceed 20 characters.
       - For the address of both employee and patient, the diagnosis, effects, result attributes, we use VARCHAR(100).
       - The genre attribute we use CHAR since it is only M or F. For the phone attribute of both employee and patient, we use VARCHAR(15).
       - For price and fee attributes, we use FLOAT data type.
       - Dob and date attributes are all DATE data type
       - The more in depth explanation are given below if you want to know more about our schema.

* **Department table:**
* Primary key: DID
* Foreign key: none

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| Column Name | Data type | Explanation |
| DID | NUMBER | Department ID will be number as it is easy to indicate one |
| DTITLE | VARCHAR(50) | Title of a department can not exceed 50 characters |
| EID | VARCHAR(5) | An employee ID datatype is VARCHAR(5) so the EID of manager of a department must also be VARCHAR(5) |

* **Employee table:**
* Primary key: EID
* Foreign key: DID related to DID of DEPARTMENT.

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| Column Name | Data type | Explanation |
| EID | VARCHAR(5) | Employee ID will have form ‘Dxxxx’ so we choose VARCHAR(5) |
| ELNAME | VARCHAR(20) | We think that an employee both first name and last name cannot exceed 20 characters |
| EFNAME | VARCHAR(20) |
| EDOB | DATE |  |
| EGENRE | CHAR | We think gender should only be express by F or M |
| ESPECIALITY | VARCHAR(50) | Same as DTITLE |
| EADDRESS | VARCHAR(100) | Address of an employee should not exceed 100 characters |
| ESTARTDATE | DATE |  |
| DID | NUMBER | Since the department ID in department table is NUMBER and DID is foreign key derived from DID of department so it must have same data type |

* **EMP\_PHONE table:**
* Primary keys: EID , EPHONE
* Foreign key: EID related to EID of EMPLOYEE

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| Column Name | Data type | Explanation |
| EID | VARCHAR(5) | Because this is a foreign key related to EID from EMPLOYEE so it must have the same datatype |
| EPHONE | VARCHAR(15) | We thinks that an employee’ s phone number will not exceed 15 char and can contain some character like ‘-‘ |

* **DOCTOR table:**
* Primary key: EID\_DOC
* Foreign key: EID\_DOC related to EID of EMPLOYEE

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| Column Name | Data type | Explanation |
| EID\_DOC | VARCHAR(5) | Because this is a foreign key related to EID from EMPLOYEE so it must have same datatype |

* **NURSE table:**
* Primary key: EID\_NUR
* Foreign key: EID\_NUR related to EID of EMPLOYEE

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| Column Name | Data type | Explanation |
| EID\_NUR | VARCHAR(5) | Because this is a foreign key related to EID from EMPLOYEE so it must have same datatype |

* **PATIENT table:**
* Primary key: PID
* Foreign key: none

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| Column Name | Datatype | Explanation |
| PID | VARCHAR(7) | We think that a patient ID is either ‘IPxxxxx’ or ‘OPxxxxx’ |
| PFNAME | VARCHAR(20) | Same reason as with EFNAME and ELNAME |
| PLNAME | VARCHAR(20) |
| PDOB | DATE |  |
| PGENRE | CHAR | Same reason as with EGENRE |
| PPHONE | VARCHAR(15) | Same reason as with EPHONE |
| PADDRESS | VARCHAR(100) | Same reason as with EADDRESS |

* **OUTPATIENT table:**
* Primary key : PID\_OUT
* Foreign keys:
* PID\_OUT related to PID of PATIENT
* EID\_DOC related to EID\_DOC of DOCTOR

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| Column Name | Data type | Explanation |
| PID\_OUT | VARCHAR(7) | Since this is a foreign key that related to PID of PATIENT so it must have same data type |
| EID\_DOC | VARCHAR(5) | Same as above since it is also foreign key |

* **INPATIENT table:**
* Primary key: PID\_IN
* Foreign keys :
* PID\_IN related to PID of PATIENT
* EID\_DOC related to EID\_DOC of DOCTOR
* EID\_NUR related to EID\_NUR of NURSE
* EID\_NUR can be NULL, PFEE must be greater than 0

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| Column Name | Data type | Explanation |
| PID\_IN | VARCHAR(7) | Since it is foreign key that related to PID so it must have same data type |
| PADMISSIONDATE | DATE |  |
| PDISCHARGEDATE | DATE |  |
| PDIAGNOSIS | VARCHAR(100) | We think that 100 characters is enough to describe the diagnosis of a patient |
| PSICKROOM | VARCHAR(10) | We decide that the sick room will not exceed 10 characters |
| PFEE | FLOAT | We think that float is the suitable data type for the fee |
| EID\_DOC | VARCHAR(5) | Same as PID\_IN since it related to EID\_DOC |
| EID\_NUR | VARCHAR(5) | Same as PID\_IN since it related to EID\_NUR |

* **EXAMINATION table:**
* Primary keys: EID\_DOC, PID\_OUT, EX\_ID
* Foreign keys:
* EID\_DOC related to EID\_DOC of DOCTOR
* PID\_OUT related to PID\_OUT of OUTPATIENT
* EXFEE Must be higher than 0

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| Column Name | Data type | Explanation |
| EID\_DOC | VARCHAR(5) | Same as above since it is related to EID\_DOC |
| PID\_OUT | VARCHAR(7) | Same as above since it is related to PID\_OUT |
| EX\_ID | VARCHAR(6) | We think that the ID of an examination will have format ‘MOxxxx’ |
| EXDATE | DATE |  |
| EXFEE | FLOAT | We think float is the suitable data type for the fee |
| EXDIAGNOSIS | VARCHAR(100) | We think 100 characters is enough to describe the diagnosis of a patient |
| EXSECOND\_EXAMINATION\_DATE | DATE |  |

* **TREATMENT table:**
* Primary keys: EID\_DOC, PID\_IN, TRID
* Foreign keys:
* EID\_DOC related to EID\_DOC of DOCTOR
* PID\_IN related to PID\_IN of INPATIENT

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| --- | --- | --- |
| Column Name | Data type | Explanation |
| EID\_DOC | VARCHAR(5) | Same as above since it is foreign key related to EID\_DOC of DOCTOR |
| PID\_IN | VARCHAR(7) | Same as above since it is foreign key related to PID\_IN of INPATIENT |
| TRID | VARCHAR(7) | We decide that the ID of a treatment will have format ‘TRxxxxx’ |
| TRSTART | DATE |  |
| TREND | DATE |  |
| TRRESULT | VARCHAR(100) | We think 100 characters is enough to describe the result of each treatment |

* **MEDICATION table:**
* Primary key : MID
* Foreign key : none
* MPRICE must be higher than 0

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| Column Name | Data type | Explanation |
| MID | VARCHAR(8) | We decide that the ID of a medication will be either ‘MEIxxxxx’ or ‘MEOxxxxx’ |
| MNAME | VARCHAR(20) | We think that the name of a medication will not exceed 20 characters |
| MEFFECTS | VARCHAR(100) | We think 100 characters is enough to describe the effects of an medication |
| MPRICE | FLOAT |  |

* **USE\_EXAM table:**
* Primary keys: EID\_DOC, PID\_OUT, EXID, MID
* Foreign keys:
* EID\_DOC,PID\_OUT,EXID related to EID\_DOC,PID\_OUT,EX\_ID of EXAMINATION
* MID related to MID of MEDICATION

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| --- | --- | --- |
| Column name | Data type | Explanation |
| EID\_DOC | VARCHAR(5) | Since this is a foreign key related to EID\_DOC of DOCTOR so it must have the same data type |
| PID\_OUT | VARCHAR(7) | Same as above since it is also a foreign key |
| EXID | VARCHAR(6) | Same as above since it is also a foreign key |
| MID | VARCHAR(8) | Same as above since it is also a foreign key |

* **USE\_TREAT table:**
* Primary keys: EID\_DOC, PID\_IN, TRID, MID
* Foreign keys:
* EID\_DOC,PID\_IN,TRID related to EID\_DOC,PID\_IN,TRID of TREATMENT
* MID related to MID of MEDICATION

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| --- | --- | --- |
| Column name | Data type | Explanation |
| EID\_DOC | VARCHAR(5) | Since this is a foreign key related to EID\_DOC of EXAMINATION so it must have the same data type |
| PID\_IN | VARCHAR(7) | Same as above since it is also a foreign key |
| TRID | VARCHAR(7) | Same as above since it is also a foreign key |
| MID | VARCHAR(8) | Same as above since it is also a foreign key |