**CS 2203 – Programming assignment unit 1 solution**

**Doctor entity set**

Primary key: Doctor\_ID

Other candidate keys: Name, Phone

Degree: 5

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| **Attributes** | **Type** | **Domain** | **Constraint(s)** |
| Doctor\_ID | Unique identifier | Numeric | entity integrity constraint (doctor must exist)  unique constraint (doctors should have an unique ID)  null constraint (must have an ID) |
| Name | Composite attribute | Text | null constraint (must have a name) |
| Phone | Single valued attribute | Numeric | unique constraint (doctors should have an unique contact number)  domain constraint (must be a real phone number) |
| Speciality number | Multi valued attribute | Numeric | null constraint (must have a number) |
| Speciality | Multi valued attribute | Text | null constraint (must have a speciality) |

**Patient entity set**

Primary key: Patient\_ID

Other candidate keys: Name, Phone, E-mail

Degree: 8

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| **Attributes** | **Type** | **Domain** | **Constraint(s)** |
| Patient\_ID | Unique identifier | Numeric | entity integrity constraint (patient must exist)  null constraint (must have an ID) |
| Name | Composite attribute | Text | null constraint (must have a name) |
| Phone | Single valued attribute | Numeric | domain constraint (must be a real phone number) |
| E-mail | Single valued attribute | E-mail address | unique constraint (patients can share phone numbers and addresses, but e-mail addresses should be unique)  domain constraint (must be a real e-mail address) |
| Address | Composite attribute | Text | domain constraint (must be a real address) |
| Added date | Composite attribute | Date/Time | null constraint (must be added) |
| allergies | Multi valued attribute | Text |  |
| Doctor\_ID | Single valued attribute | Numeric | Only one doctor  referential integrity constraint (must match a doctor)  null constraint (must have an assigned doctor) |

**Appointment entity set**

Primary key: Appointment\_ID

Other candidate keys: Date

Degree: 8

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| **Attributes** | **Type** | **Domain** | **Constraint(s)** |
| Appointment\_ID | Unique identifier | Numeric | entity integrity constraint (appointment should be scheduled)  null constraint (must have an ID) |
| Date | Composite attribute | Date/Time | unique constraint (one appointment at a time)  null constraint (must be scheduled) |
| Doctor\_ID | Single valued attribute | Numeric | referential integrity constraint (must match a doctor)  null constraint (doctor should be present) |
| Patient\_ID | Single valued attribute | Numeric | referential integrity constraint (must match a patient)  null constraint (patient should be present) |
| Blood pressure | Single valued attribute | Numeric | domain constraint (systolic reading first, diastolic second) |
| Pulse | Single valued attribute | Text | domain constraint (use beats per minute) |
| Treatment notes | Multi valued attribute | Text |  |
| Medicines | Multi valued attribute | Text |  |