

Candidate number: 97431

1. Schema 1

1.1 Identify the candidate key:

Candidate key: {stuId, unit}

1.2 Identify the key and non-key attributes

Key attribute: stuId, unit

No key attribute: name, gender, grade

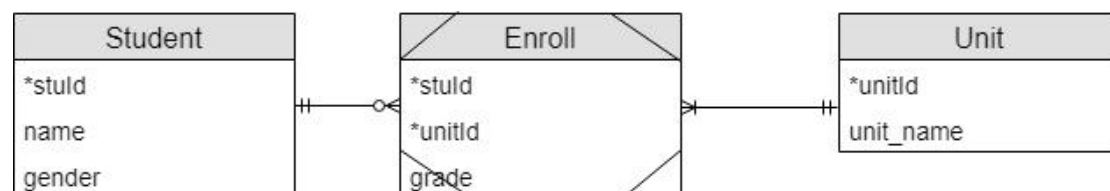
1.3 Normal forms

The schema satisfied 1NF, because there is only a single element in each cell.

The schema does not satisfied 2NF, because there are partial dependencies: {stuId, unit}->{name}, {stuId, unit}->{gender}, as {stuId}->{name}, {unit}->{gender}, where {stuId, unit} is candidate key and name, gender are no key attribute.

Therefore, it is not in 3NF and BCNF either.

1.4 Normalise to BCNF



2. Schema 2

2.1 Identify the candidate key:

Candidate key: {city}

2.2 Identify the key and non-key attributes

Key attribute: city

No key attribute: country, pop, co_pop, capital

2.3 Normal forms

The schema satisfied 1NF and 2NF, because there is only a single element in each cell and the candidate key in this schema has only one attribute (any schema that is in 1NF and has no composite candidate keys is automatically in 2NF)¹.

The schema does not satisfy 3NF: there is a transitive dependency: {city} → {country} → {co_pop}, both country and co_pop are non-key attributes.

So, the schema does not satisfy BCNF either.

2.4 Normalise to BCNF

