Candidate Number: 97610

Schema 1：

1. Candidate Keys
   {stuId, unit}

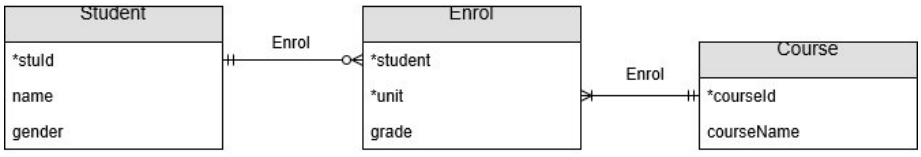
2. Key and non-key attributes
   Key attributes: stuId, unit
   Non-key attributes: name, gender, grade

3. Whether conform to the various forms

NF Type	1NF	2NF	3NF	BCNF
Satisfy(√)/ Not(X)	√	X	X	X
Reasons	Each tuple is identified by "stuId" and "unit". And the other three attribute are not collection attributes.	{stuId} is a subset of candidate key {stuId, unit} and it is not a key, however it determines the non-key {gender}	1. Not 2NF.	1. Not 3NF. 2. {stuId} determines {name}, however {stuId is not a superkey}

All FDs: (key attributes are marked with underlines)
{stuId} -> {name}, {stuId} -> {gender}, {stuId, name} -> {gender},
{stuId, gender} -> {name}, {stuId, unit} -> {name}, {stuId, unit} -> {gender},
{stuId, unit} -> {grade}, {stuId, grade} -> {name}, {stuId, grade} -> {gender},
{stuId, name, unit} -> {gender}, {stuId, name, unit} -> {grade},
{stuId, name, grade} -> {gender}, {stuId, gender, unit} -> {name},
{stuId, gender, unit} -> {grade}, {stuId, gender, grade} -> {name}, {stuId, unit, grade} -> {name},
{stuId, unit, grade} -> {gender}

4.



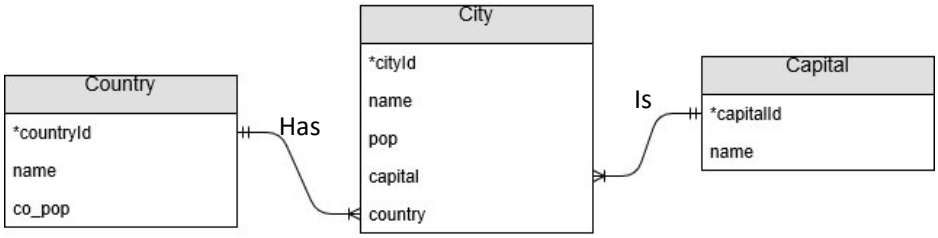
Schema 2:

1. Candidate keys
   {city}
2. Key and non-key attributes
   Key attributes: city
   Non-key attributes: country, pop, co_pop, capital
3.

NF Type	1NF	2NF	3NF	BCNF
Satisfy(√)/ Not(X)	√	√	X	X
Reasons	Each tuple is identified by city, and the rest attributes are not collection attributes	It is in 1NF and there is no composite candidate key.	Country determines co_pop, but country and co_pop are non-key attributes.	Not 3NF.

All FDs: (key attributes are marked with underlines)
{city} -> {country}, {city} -> {pop}, {city} -> {co_pop}, {city} -> {capital}, {city, country} -> {pop}, {city, country} -> {co_pop}, {city, country} -> {capital}, {city, pop} -> {country}, {city, pop} -> {co_pop}, {city, pop} -> {capital}, {city, co_pop} -> {country}, {city, co_pop} -> {pop}, {city, co_pop} -> {capital}, {city, capital} -> {country}, {city, capital} -> {pop}, {city, capital} -> {co_pop}, {city, country, pop} -> {co_pop}, {city, country, pop} -> {capital}, {city, country, co_pop} -> {pop}, {city, country, co_pop} -> {capital}, {city, country, capital} -> {pop}, {city, country, capital} -> {co_pop}, {city, pop, co_pop} -> {country}, {city, pop, co_pop} -> {capital}, {city, pop, capital} -> {country}, {city, pop, capital} -> {co_pop}, {city, co_pop, capital} -> {country}, {city, co_pop, capital} -> {pop}, {city, country, pop, co_pop} -> {capital}, {city, country, pop, capital} -> {co_pop}, {city, country, co_pop, capital} -> {pop}, {city, pop, co_pop, capital} -> {country}

4.



Note: The “name” field of “Capital” Table can only be “Yes” or “No”. All “Id” are integer with auto increment.