## Students x Grades

1NF(1)

| student id | gpa | first name | last name      |
|------------|-----|------------|----------------|
| _          |     | _          | _              |
| 1          | 1.8 | Rozelle    | Franchi        |
| 2          | 1.6 | Elvin      | Boraston       |
| 3          | 2.0 | Melania    | O' Ronan       |
| 4          | 3.5 | Web        | Dalyell        |
| 5          | 2.6 | Edith      | Ajam           |
| 6          | 2.0 | Chen       | Tunkin         |
| 7          | 1.0 | Ronda      | Loud           |
| 8          | 1.0 | Tamera     | Erskine Sandys |
| 9          | 3.7 | Allix      | Clarridge      |
| 10         | 1.4 | Julian     | Roswarne       |
|            |     |            |                |

Table scheme: {student\_id, gpa, first\_name, last\_name}

FD: {student\_id} -> {gpa}

{student\_id} -> {first\_name}

{student\_id} -> {last\_name}

## 1NF(2)

| email                       | gpa | student_id |
|-----------------------------|-----|------------|
| rfranchi0@issuu.com         | 1.8 | 1          |
| eboraston1@yelp.com         | 1.6 | 2          |
| moronan2@freewebs.com       | 2.0 | 3          |
| wdalyell3@sciencedirect.com | 3.5 | 4          |
| eajam4@bloomberg.com        | 2.6 | 5          |
| ctunkin5@exblog.jp          | 2.0 | 6          |
| rloud6@godaddy.com          | 1.0 | 7          |
| terskinesandys7@alexa.com   | 1.0 | 8          |
| aclarridge8@weather.com     | 3.7 | 9          |
| jroswarne9@123-reg.co.uk    | 1.4 | 10         |
|                             |     |            |

Table scheme: {email, gpa, student\_id }

FD: {email} -> {student\_id} {student\_id} -> {gpa}

## 2NF(1)

| first_name | student_id | gpa |
|------------|------------|-----|
| Rozelle    | 1          | 1.8 |
| Elvin      | 2          | 1.6 |
| Melania    | 3          | 2.0 |
| Web        | 4          | 3.5 |
| Edith      | 5          | 2.6 |
| Chen       | 6          | 2.0 |
| Ronda      | 7          | 1.0 |
| Tamera     | 8          | 1.0 |
| Allix      | 9          | 3.7 |
| Julian     | 10         | 1.4 |
|            |            |     |

Schema:{first\_name, student\_id, gpa}
FD: {student\_id} -> {first\_name}
{student\_id} -> {gpa}

## 2NF(2)

| student_id |    | gpa |
|------------|----|-----|
|            | 1  | 1.8 |
|            | 2  | 1.6 |
|            | 3  | 2.0 |
|            | 4  | 3.5 |
|            | 5  | 2.6 |
|            | 6  | 2.0 |
|            | 7  | 1.0 |
|            | 8  | 1.0 |
|            | 9  | 3.7 |
|            | 10 | 1.4 |
|            |    |     |

Schema: {student\_id, gpa} FD: {student\_id} -> {gpa}

3NF

{first\_name} -> {gpa}

**BCNF** 

{first\_name} -> {last\_name}
{gender} -> {phone\_number} etc.

#### Students x Student\_enrolled

#### 1NF(1)

| student_enroll_id | student_id | first_name | last_name      | email                       |
|-------------------|------------|------------|----------------|-----------------------------|
| 1                 | 1          | Rozelle    | Franchi        | rfranchi0@issuu.com         |
| 2                 | 2          | Elvin      | Boraston       | eboraston1@yelp.com         |
| 3                 | 3          | Melania    | O' Ronan       | moronan2@freewebs.com       |
| 4                 | 4          | Web        | Dalyell        | wdalyell3@sciencedirect.com |
| 5                 | 5          | Edith      | Ajam           | eajam4@bloomberg.com        |
| 6                 | 6          | Chen       | Tunkin         | ctunkin5@exblog.jp          |
| 7                 | 7          | Ronda      | Loud           | rloud6@godaddy.com          |
| 8                 | 8          | Tamera     | Erskine Sandys | terskinesandys7@alexa.com   |
| 9                 | 9          | Allix      | Clarridge      | aclarridge8@weather.com     |
| 10                | 10         | Julian     | Roswarne       | jroswarne9@123-reg.co.uk    |
|                   |            |            |                |                             |

Table scheme: {student\_enroll\_id, student\_id, first\_name, last\_name, email}

FD: {student\_id} -> {email} {student\_id} -> {first\_name} {student\_id} -> {last\_name} {student\_enroll\_id} -> {student\_id} {student\_enroll\_id} -> {email} ect.

#### 1NF(2)

| student_enroll_id | first_name | last_name      | phone_number |
|-------------------|------------|----------------|--------------|
| 1                 | Rozelle    | Franchi        | 304-884-7232 |
| 2                 | Elvin      | Boraston       | 519-347-4537 |
| 3                 | Melania    | O' Ronan       | 862-222-2866 |
| 4                 | Web        | Dalyell        | 124-588-1006 |
| 5                 | Edith      | Ajam           | 327-962-7840 |
| 6                 | Chen       | Tunkin         | 508-743-0427 |
| 7                 | Ronda      | Loud           | 641-212-4074 |
| 8                 | Tamera     | Erskine Sandys | 684-195-0970 |
| 9                 | Allix      | Clarridge      | 267-289-3154 |
| 10                | Julian     | Roswarne       | 541-659-4905 |
|                   |            |                |              |

Table scheme: {student\_enroll\_id,first\_name, last\_name, phone\_number}

FD: {student\_enroll\_id} -> {first\_name}
 {student\_enroll\_id} -> {last\_namel}
 {student\_enroll\_id} -> {phone\_number} ect.

#### 2NF

| student_enroll_id | student_id | email                       |
|-------------------|------------|-----------------------------|
| 1                 | 1          | rfranchi0@issuu.com         |
| 2                 | 2          | eboraston1@yelp.com         |
| 3                 | 3          | moronan2@freewebs.com       |
| 4                 | 4          | wdalyell3@sciencedirect.com |
| 5                 | 5          | eajam4@bloomberg.com        |
| 6                 | 6          | ctunkin5@exblog.jp          |
| 7                 | 7          | rloud6@godaddy.com          |
| 8                 | 8          | terskinesandys7@alexa.com   |
| 9                 | 9          | aclarridge8@weather.com     |
| 10                | 10         | jroswarne9@123-reg.co.uk    |
|                   |            |                             |

Schema: {student\_enroll\_id, student\_id, email}
FD: {student\_id} -> {student\_enroll\_id}
{student\_enroll\_id} -> {email}

3NF

{first\_name} -> {phone\_number}

#### **BCNF**

{first\_name} -> {last\_name}
{birth\_date} -> {phone\_number} etc.

## Faculty x Course

### 1NF(1)

| course_id | course_name              | Faculty_name                          |
|-----------|--------------------------|---------------------------------------|
| 1         | Social Worker            | Engineering                           |
| 2         | Senior Developer         | Law                                   |
| 3         | Director of Sales        | TFL                                   |
| 4         | Automation Specialist IV | Pedagogical                           |
| 5         | Chemical Engineer        | Medical                               |
| 6         | Research Assistant II    | Polytechnic                           |
| 7         | Financial Analyst        | Economy                               |
| 8         | Data Coordiator          | center of multidisciplinary education |
| 9         | Pharmacist               | continuing education center           |
| 10        | Paralegal                | education and methodical center       |
|           |                          |                                       |

Table scheme: {course\_id,course\_name, faculty\_name}

FD: {course\_id} -> {course name}
 {coursel\_id} -> {faculty\_name}
 {course\_name} -> {faculty\_name}

# 1NF(2)

| course_name       | credits | Faculty_name                          | Faculty_id |
|-------------------|---------|---------------------------------------|------------|
| Social Worker     | 3       | Engineering                           | 103        |
| Senior Developer  | 5       | Law                                   | 104        |
| Director of Sales | 2       | TFL                                   | 105        |
| Automation Speci  | 2       | Pedagogical                           | 106        |
| Chemical Engine   | 1       | Medical                               | 107        |
| Research Assista  | 1       | Polytechnic                           | 108        |
| Financial Analyst | 1       | Economy                               | 109        |
| Data Coordiator   | 2       | center of multidisciplinary education | 110        |
| Pharmacist        | 5       | continuing education center           | 111        |
| Paralegal         | 3       | education and methodical center       | 112        |
|                   |         |                                       |            |

3NF {course\_id} ->{credits} etc.

BCNF null