# The Journal of Computing For Professionals (CFP) Database

By:
**Samuel Wong, Hannah Jones, Jeel Patel, William Fletcher, Patricia Reisman**

Submitted to:
**Dr. Hashemi**

As
**Assignment #2**
for
**Database Systems**

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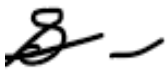
## Contributions

| Name: | Tasks: | Contribution Percentage: | Signature: |
|---|---|---|---|
| Jeel Patel | Normalization, updated Semantic Rules, Semantic Rules to FDs (13-18), filled in 1/4 of table of attributes, 1/2 of schema, queries (d-f), CSVs (18-23) | 17% |  |
| Hannah Jones | Normalization, Formatting of Final Submission, original universal relation diagram, updated Semantic Rules, Semantic Rules to FDs (7-12), queries (g-i), CSVs (7-12), trivial MVDs | 22% |  |
| William Fletcher | Normalization, Semantic Rules to FDs (1-6), filled in 1/4 of table of attributes, 1/2 of schema, queries (m-n), CSVs (13-17) | 12% |  |
| Sam Wong | Normalization, Organization, updating diagrams, Semantic Rules to FDs (25-28), filled in 1/4 of table of attributes, queries (j-l), CSVs (24-30), put together txt and sql files | 18% |  |
| Tricia Reisman | Normalization, updated and sorted Table of Attributes, Semantic Rules to FDs (19-24), filled in 1/4 of table of attributes, queries (a-c), CSVs (1-6), updated queries (m, n), updated researcher view, trivial MVDs, quality control | 31% |  |

Percentage is based on time logged, value of contribution, and correctness of contributions by our estimation. We do not believe this is a perfect representation, but that it is relatively accurate to the assigned tasks.

## Table of Contents

## Table of Figures

## Table of Tables

## Introduction

The Journal of Computing for Professionals authorities requested a database designed for their publications. The results were achieved by analyzing the contents of the journals provided, which follow the same organizational format, and creating semantic rules based on the information found. The semantic rules were then converted into functional dependencies. If the semantic rule included a multivalued dependency, they were made trivial and this was indicated using "(MVD)". After the semantic rules were converted, the information was used to form a universal relation diagram. Using this diagram, a primary key was determined, and then using the primary key, the universal relation was checked to see if any reduction could take place. After checking for reductions of the diagram, the normalization process was applied from First Normal Form (1NF), Second Normal Form (2NF), Third Normal Form (3NF), Boyce-Codd Normal Form (BCNF), and Fourth Normal Form (4NF). From this process, the database schema was then found. After the schema was found, the actual implementation of the database in MYSQL began along with creating the queries and views requested from the client.

Included in this part of the report is a list of semantic rules, a detailed explanation of their conversions, a table of attributes with their name, description, and an example instance, a list of functional dependencies, the universal relation diagram and its reduction, a detailed explanation of the normalization process, and the resulting schema for the database. Also included is an appendix which contains all meeting records. Part 2 of the report is the actual implementation of the database in MYSQL. It includes the creation, population, and content displayed by the database based on the two copies of the journal provided. The last part of the report includes the queries and views requested from the client which were achieved by manipulating our database.

**Part One:**

# *Analysis and Design*

## Semantic Rules

1. A Journal has a volume number, issue number, and issue date.
2. A Journal has several Articles.
3. A Journal has several Events.
4. A Journal has several Conferences.
5. A Journal has several Job Listings.
6. A Journal has several Student Profiles.
7. An Article has a title, abstract, and content.
8. An article has several Article Authors.
9. An article has several References.
10. An article has several keywords.
11. An Article Author has an employer, affiliation, and name.
12. A Reference has a title, page index, release date, location, and source.
13. A Reference has several reference authors.
14. An Event has a name, start date, end date, location, contact name, contact address, contact email, contact fax, and contact telephone number.
15. An Event has several sponsors.
16. A Conference has a name, start date, end date, location, and coordinator.
17. A Conference has several Members.
18. A Conference has several sets of Conference Contact Information.
19. A Conference has several sponsors.
20. A Conference has several Conference Paper Submission guidelines.
21. A Conference has several Conference Paper Submission topics of interests.
22. A Conference has several Conference Paper Submission Dates.
23. A Conference Paper Submission Date has a type and a calendar date.

24. Conference Contact Information has a name, type, address, email, fax number, and telephone number.

25. A Member has a name, type, affiliation, and country.

26. A Job Listing has several qualifications.

27. A Job Listing has an employer, location, salary information, status, title, open date, close date, job description, contact name, contact address, contact email, contact fax, and contact telephone number.

28. A Student Profile has a name, city, state, country, and backstory.

29. A Student Profile has several degrees.

30. A Degree has a degree level, completion year, and degree type.

## Sematic Rule Conversions

For each semantic rule (S.R.):

a. Identify entities that are in the S.R.
b. Identify attributes that are in the S.R.
c. Assign a name to each attribute
d. Choose entity identifiers: if there is an attribute that can serve as the entity identifier, then we use that; Otherwise, we create an attribute that has a unique value for the entity to serve as entity identifier
e. Write the Functional Dependency representing the S.R. using the following framework:
   Entity identifier(s) → All attributes separated by ","

   If the rule is a Multivalued Dependency, this is indicated with (MVD)

1. A Journal has a volume number, issue number, and issue date.
   a. Journal
   b. Volume number, issue number, issue date
   c. VolNum, IssNum, IssDate
   d. JournalID
   e. JournalID → VolNum, IssNum, IssDate

2. A Journal has several Articles.
   a. Journal, Article
   b. No attributes are present in this semantic rule.
   c. No attributes are present in this semantic rule.
   d. JournalID (from S.R. 1), ArticleID
   e. JournalID → → ArticleID (MVD)

3. A Journal has several Events.
   a. Journal, Event
   b. No attributes are present in this semantic rule.
   c. No attributes are present in this semantic rule.
   d. JournalID (from S.R. 1), EventID
   e. JournalID → → EventID (MVD)

4. A Journal has several Conferences.
   a. Journal, Conference
   b. No attributes are present in this semantic rule.
   c. No attributes are present in this semantic rule.
   d. JournalID (from S.R. 1), ConfID
   e. JournalID → → ConfID (MVD)

5. A Journal has several Job Listings.
    a. Journal, Job Listing
    b. No attributes are present in this semantic rule.
    c. No attributes are present in this semantic rule.
    d. JournalID (from S.R. 1), JLID
    e. JournalID → → JLID (MVD)

6. A Journal has several Student Profiles.
    a. Journal, Student profile
    b. No attributes are present in this semantic rule.
    c. No attributes are present in this semantic rule.
    d. JournalID (from S.R. 1), StuID
    e. JournalID → → StuID (MVD)

7. An Article has a title, abstract, and content.
    a. Article
    b. Article title, abstract, content
    c. ArticleTitle, ArticleAbstract, ArticleContent
    d. ArticleID (from S.R. 2)
    e. ArticleID → ArticleTitle, ArticleAbstract, ArticleContent

8. An article has several Article Authors.
    a. Article, Article Author
    b. No attributes are present in this semantic rule.
    c. No attributes are present in this semantic rule.
    d. ArticleID (from S.R. 2), ArticleAuthorID
    e. ArticleID → → ArticleAuthorID (MVD)

9. An article has several References.
    a. Article, Reference
    b. No attributes are present in this semantic rule.
    c. No attributes are present in this semantic rule.
    d. ArticleID (from S.R. 2), RefID
    e. ArticleID → → RefID (MVD)

10. An article has several keywords.
    a. Article
    b. Keywords
    c. ArticleKeywords
    d. ArticleID (from S.R. 2)
    e. ArticleID → → ArticleKeywords (MVD)

11. An Article Author has an employer, affiliation, and name.
    a. Article Author
    b. Employer, affiliation, name
    c. ArticleAuthorEmployer, ArticleAuthorAff, ArticleAuthorName
    d. ArticleAuthorID (from S.R. 8)
    e. ArticleAuthorID → ArticleAuthorEmployer, ArticleAuthorAff, ArticleAuthorName

12. A Reference has a title, page index, release date, location, and source.
    a. Reference
    b. Title, page index, release date, location, source
    c. RefTitle, RefPageIndex, RefReleaseDate, RefLocation, RefSource
    d. RefID (from S.R. 9)
    e. RefID → RefTitle, RefPageIndex, RefReleaseDate, RefLocation, RefSource

13. A Reference has several reference authors.
    a. Reference
    b. Reference author
    c. RefAuthorName
    d. RefID (from S.R. 9)
    e. RefID → → RefAuthorName (MVD)

14. An Event has a name, start date, end date, location, contact name, contact address, contact email, contact fax, and contact telephone number.
    a. Event
    b. Name, start date, end date, location, contact name, contact address, contact email, contact fax, contact telephone number
    c. EventName, EventStartDate, EventEndDate, EventLocation, EventCInfoName, EventCInfoAdd, EventCInfoEmail, EventCInfoFax, EventCInfoTelNum
    d. EventID (from S.R. 3)
    e. EventID → EventName, EventStartDate, EventEndDate, EventLocation, EventCInfoName, EventCInfoAdd, EventCInfoEmail, EventCInfoFax, EventCInfoTelNum

15. An Event has several sponsors.
    a. Event
    b. Sponsors
    c. EventSponsor
    d. EventID (from S.R. 3)
    e. EventID → → EventSponsor (MVD)

16. A Conference has a name, start date, end date, location, and coordinator.
    a. Conference
    b. Name, start date, end date, location, coordinator
    c. ConfName, ConfStartDate, ConfEndDate, ConfLocation, ConfCoor
    d. ConfID (from S.R. 4)
    e. ConfID → ConfName, ConfStartDate, ConfEndDate, ConfLocation, ConfCoor

17. A Conference has several Members.
    a. Conference, Member
    b. No attributes are present in this semantic rule.
    c. No attributes are present in this semantic rule.
    d. ConfID (from S.R. 4), MemID
    e. ConfID → → MemID (MVD)

18. A Conference has several sets of Conference Contact Information.
    a. Conference, Conference Contact Information
    b. No attributes are present in this semantic rule.
    c. No attributes are present in this semantic rule.
    d. ConfID (from S.R. 4), ConfCInfoID
    e. ConfID → → ConfCInfoID (MVD)

19. A Conference has several sponsors.
    a. Conference
    b. Sponsor
    c. ConfSponsor
    d. ConfID (from S.R. 4)
    e. ConfID → → ConfSponsor (MVD)

20. A Conference has several Conference Paper Submission guidelines.
    a. Conference
    b. Conference Paper Submission guidelines
    c. CPSGuidelines
    d. ConfID (from S.R. 4)
    e. ConfID → → CPSGuidelines (MVD)

21. A Conference has several Conference Paper Submission topics of interests.
    a. Conference
    b. Conference Paper Submission topics of interest
    c. CPSTopics
    d. ConfID (from S.R. 4)
    e. ConfID → → CPSTopics (MVD)

22. A Conference has several Conference Paper Submission Dates.
    a. Conference, Conference Paper Submission Date
    b. No attributes are present in this semantic rule.
    c. No attributes are present in this semantic rule.
    d. ConfID (from S.R. 4), CPSDateID
    e. ConfID → → CPSDateID (MVD)

23. A Conference Paper Submission Date has a type and a calendar date.
    a. Conference Paper Submission Date
    b. Type, calendar date
    c. CPSDateType, CPSDate
    d. CPSDateID (from S.R. 22)
    e. CPSDateID → CPSDateType, CPSDate

24. Conference Contact Information has a name, type, address, email, fax number, and telephone number.
    a. Conference Contact Information
    b. Name, type, address, email, fax number, telephone number
    c. ConfCInfoName, ConfCInfoType, ConfCInfoAdd, ConfCInfoEmail, ConfCInfoFax, ConfCInfoTelNum
    d. ConfCInfoID (from S.R. 18)
    e. ConfCInfoID → ConfCInfoName, ConfCInfoType, ConfCInfoAdd, ConfCInfoEmail, ConfCInfoFax, ConfCInfoTelNum

25. A Member has a name, type, affiliation, and country.
    a. Member
    b. Name, type, affiliation, country
    c. MemName, MemType, MemAff, MemCountry
    d. MemID (from S.R. 17)
    e. MemID → MemName, MemType, MemAff, MemCountry

26. A Job Listing has several qualifications.
    a. Job Listing
    b. Qualifications
    c. JLQual
    d. JLID (from S.R. 5)
    e. JLID → → JLQual (MVD)

27. A Job Listing has an employer, location, salary information, status, title, open date, close date, job description, contact name, contact address, contact email, contact fax, and contact telephone number.
    a. Job Listing
    b. Employer, location, salary, status, title, open date, close date, job description, contact name, contact address, contact email, contact fax, contact telephone number
    c. JLEmployer, JLLocation, JLSalary, JLStatus, JLTitle, JLOpenDate, JLCloseDate, JLDesc, JLCInfoName, JLCInfoAdd, JLCInfoEmail, JLCInfoFax, JLCInfoTelNum
    d. JLID (from S.R. 5)
    e. JLID → JLEmployer, JLLocation, JLSalary, JLStatus, JLTitle, JLOpenDate, JLCloseDate, JLDesc, JLCInfoName, JLCInfoAdd, JLCInfoEmail, JLCInfoFax, JLCInfoTelNum

28. A Student Profile has a name, city, state, country, and backstory.
    a. Student Profile
    b. Name, city, state, country, backstory
    c. StuName, StuCity, StuState, StuCountry, StuBackstory
    d. StuID (from S.R. 6)
    e. StuID → StuName, StuCity, StuState, StuCountry, StuBackstory

29. A Student Profile has several degrees.
    a. Student, Degree
    b. No attributes are present in this semantic rule.
    c. No attributes are present in this semantic rule.
    d. StuID (from S.R. 6), DegID
    e. StuID → → DegID (MVD)

30. A Degree has a degree level, completion year, and degree type.
    a. Degree
    b. Degree level, completion year, degree type
    c. DegLevel, DegYrComplete, DegType
    d. DegID (from S.R. 29)
    e. DegID → DegLevel, DegYrComplete, DegType

**Table of Attributes**

| Attribute Name | Attribute Description | Attribute Instance |
|---|---|---|
| ArticleAbstract | The contents of an article's Abstract section | The Monte-Carlo training paradigm… (full content of abstract) |
| ArticleAuthorAff | Affiliation of Author | University of Arkansas CSCI department |
| ArticleAuthorEmployer | Employer of Author | Google |
| ArticleAuthorID | Unique ID of Author | 80054623 |
| ArticleAuthorName | Name of Author | John Robinson |
| ArticleContent | The body of the article | A neural network is composed of an input layer, one or more than one hidden layers and an output layer.... (full content of article body) |
| ArticleID | Unique ID of Article | 10012348 |
| ArticleKeywords | Keyword of the article | Prediction Power |
| ArticleTitle | Title of the article | Prediction Capabilities of Neural Networks Trained in Monte-Carlo Paradigm |
| ConfCInfoAdd | Conference contact address | 65 Red Court, San Diego, California 91932 |
| ConfCInfoEmail | Conference contact | jane.green@gmail.com |
| ConfCInfoFax | Conference contact fax number | (875)912-5618 |
| ConfCInfoID | Conference contact information | Computing Conference |
| ConfCInfoName | Conference contact name | Jane Green |
| ConfCInfoTelNum | Conference contact telephone number | (912)220-0641 |
| ConfCInfoType | Conference contact type | Paper Submission |
| ConfCoor | Coordinator of a Conference | Mary Johnson |
| ConfEndDate | End date of conference | 1994-03-05 |
| ConfID | Unique ID of Conference | 10210322 |
| ConfLocation | Location of a Conference | Indiana Convention Center, Indianapolis, Indiana |
| ConfName | Name of a Conference | 1993 Symposium on Applied Computing |

| | | |
|---|---|---|
| ConfSponsor | Sponsor of a Conference | IEEE Computer Security |
| ConfStartDate | Start Date of Conference | 1995-03-25 |
| CPSDate | Conference Paper Submission Date | 2000-06-24 |
| CPSDateID | Conference Paper Submission Date ID | 50819592 |
| CPSDateType | Type of Conference Paper Submission Date | Abstract due |
| CPSGuidelines | Guidelines of Conference Paper Submission | At most 6000 words |
| CPSTopics | Topics of Conference Paper Submission | Product modeling |
| DegID | Unique ID of degree | 31445259 |
| DegLevel | Level of Degree | Masters |
| DegType | Field of Study | Economics |
| DegYrComplete | Year Degree completed | 2013 |
| EventCInfoAdd | Event contact address | 41 Green Avenue, Phoenix, Arizona 85003 |
| EventCInfoEmail | Event contact email | jane.smith@gmail.com |
| EventCInfoFax | Event contact fax number | (912)892-6254 |
| EventCInfoName | Event contact name | Jane Smith |
| EventCInfoTelNum | Event contact telephone number | (912)867-5309 |
| EventEndDate | End date of event | 1994-07-24 |
| EventID | Unique ID of event | 15382478 |
| EventLocation | Location of an Event | Madrid, Spain |
| EventName | Name of an Event | IFIP Congress 1992: 12th World Computer Congress |
| EventSponsor | Sponsor of an Event | International Federation for Information Processing |
| EventStartDate | Start date of event | 2015-07-04 |
| IssDate | Date of Issue | 06/1992 |
| IssNum | Number of the Issue | 345 |
| JLCInfoAdd | Job Listing contact address | 2 Blue Drive, New York City, New York 10004 |
| JLCInfoEmail | Job Listing contact email | john.smith@gmail.com |
| JLCInfoFax | Job Listing contact fax number | (912)523-1259 |
| JLCInfoName | Job Listing contact name | John Smith |

| | | |
|---|---|---|
| JLCInfoTelNum | Job Listing contact telephone number | (678)999-8212 |
| JLCloseDate | Job List close date | 2021-06-21 |
| JLDesc | Description of the Job | Tests new chicken products |
| JLEmployer | Employer for a Job | Kentucky Fried Chicken |
| JLID | Unique ID of a job listing | 35445599 |
| JLLocation | Location for a job | Kentucky, United States |
| JLOpenDate | Job List open date | 1992-02-01 |
| JLQual | Qualification for a job | 5 years of experience |
| JLSalary | Salary of a job | $65,000 |
| JLStatus | Status of a job listing | Unfilled |
| JLTitle | Title of job position | Food Science Researcher |
| JournalID | Unique ID of Journal | 30012388 |
| MemAff | Affiliation of a Member | SUNY at Stony Brook, USA |
| MemCountry | Country of a Member | Japan |
| MemID | Unique ID of Member | 52220186 |
| MemName | Name of a Member | Larry Wittie |
| MemType | Type of a Member | Program Chair |
| RefAuthorName | Reference author name | Michael Scott |
| RefID | Unique ID of Reference Entity | 60054254 |
| RefLocation | Location of a cited reference material | Cambridge, Massachusetts |
| RefPageIndex | Page index of a cited reference material | 145-156 |
| RefReleaseDate | Release date of a cited reference material | 1990-05-09 |
| RefSource | Source information of a reference | ACM Trans. Compute syst. |
| RefTitle | Title of a cited reference material | “Introduction to the Theory of Neural Computation” |
| StuBackstory | Student’s backstory | Wanted to be medical Doctor, dream came true at ASU. |
| StuCity | City the student lives in | Jacksonville |
| StuCountry | Country the student is from | Belgium |
| StuID | Unique Student ID | 90095444 |
| StuName | Name of the student | Bob Dole |
| StuState | State the student lives in | Alaska |
| VolNum | Number of the Volume | 5 |

## Functional Dependencies

1. JournalID → VolNum, IssNum, IssDate
2. JournalID → → ArticleID (MVD)
3. JournalID → → EventID (MVD)
4. JournalID → → ConfID (MVD)
5. JournalID → → JLID (MVD)
6. JournalID → → StuID (MVD)
7. ArticleID → ArticleTitle, ArticleAbstract, ArticleContent
8. ArticleID → → ArticleAuthorID (MVD)
9. ArticleID → → RefID (MVD)
10. ArticleID → → ArticleKeywords (MVD)
11. ArticleAuthorID → ArticleAuthorEmployer, ArticleAuthorAff, ArticleAuthorName
12. RefID → RefTitle, RefPageIndex, RefReleaseDate, RefLocation, RefSource
13. RefID → → RefAuthorName (MVD)
14. EventID → EventName, EventStartDate, EventEndDate, EventLocation, EventCInfoName, EventCInfoAdd, EventCInfoEmail, EventCInfoFax, EventCInfoTelNum
15. EventID → → EventSponsor (MVD)
16. ConfID → ConfName, ConfStartDate, ConfEndDate, ConfLocation, ConfCoor
17. ConfID → → ConfSponsor (MVD)
18. ConfID → → MemID (MVD)
19. ConfID → → ConfCInfoID (MVD)
20. ConfCInfoID → ConfCInfoName, ConfCInfoType, ConfCInfoAdd, ConfCInfoEmail, ConfCInfoFax, ConfCInfoTelNum
21. MemID → MemName, MemType, MemAff, MemCountry
22. ConfID → → CPSGuidelines (MVD)
23. ConfID → → CPSTopics (MVD)
24. ConfID → → CPSDateID (MVD)
25. CPSDateID → DateType, CPSDate
26. JLID → → JLQual (MVD)

27. JLID → JLEmployer, JLLocation, JLSalary, JLStatus, JLTitle, JLDesc, JLOpenDate, JLCloseDate, JLCInfoName, JLCInfoAdd, JLCInfoEmail, JLCInfoFax, JLCInfoTelNum

28. StuID → StuName, StuCity, StuState, StuCountry, StuBackstory

29. StuID → → DegID (MVD)

30. DegID → DegLevel, DegYrComplete, DegType

## Universal Relation Diagram

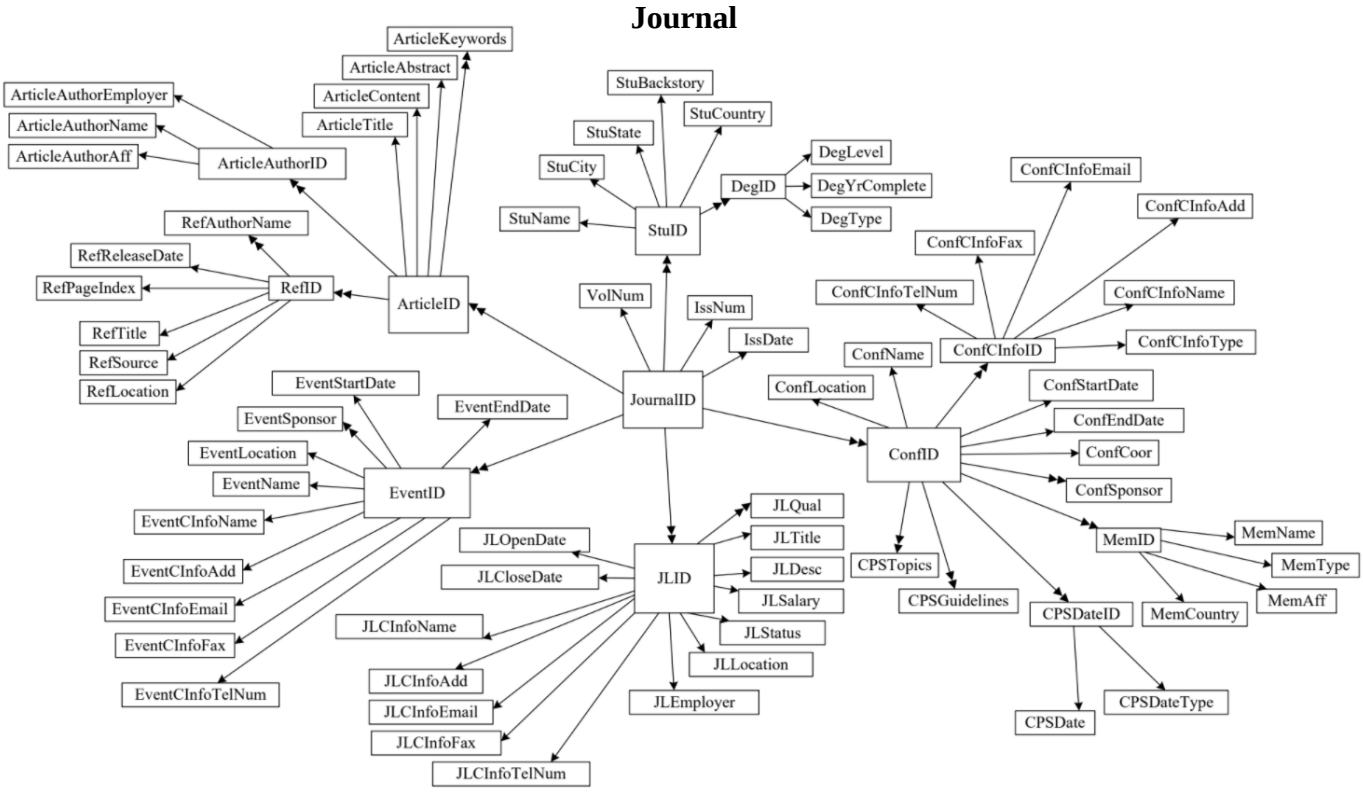



*Figure 1: Initial FD Diagram*

The primary key is (JournalID). We tested each attribute to act as primary key by trying to reach every attribute from them and found that (JournalID) met the requirement.

## Reduced Universal Relation Diagram

### Journal

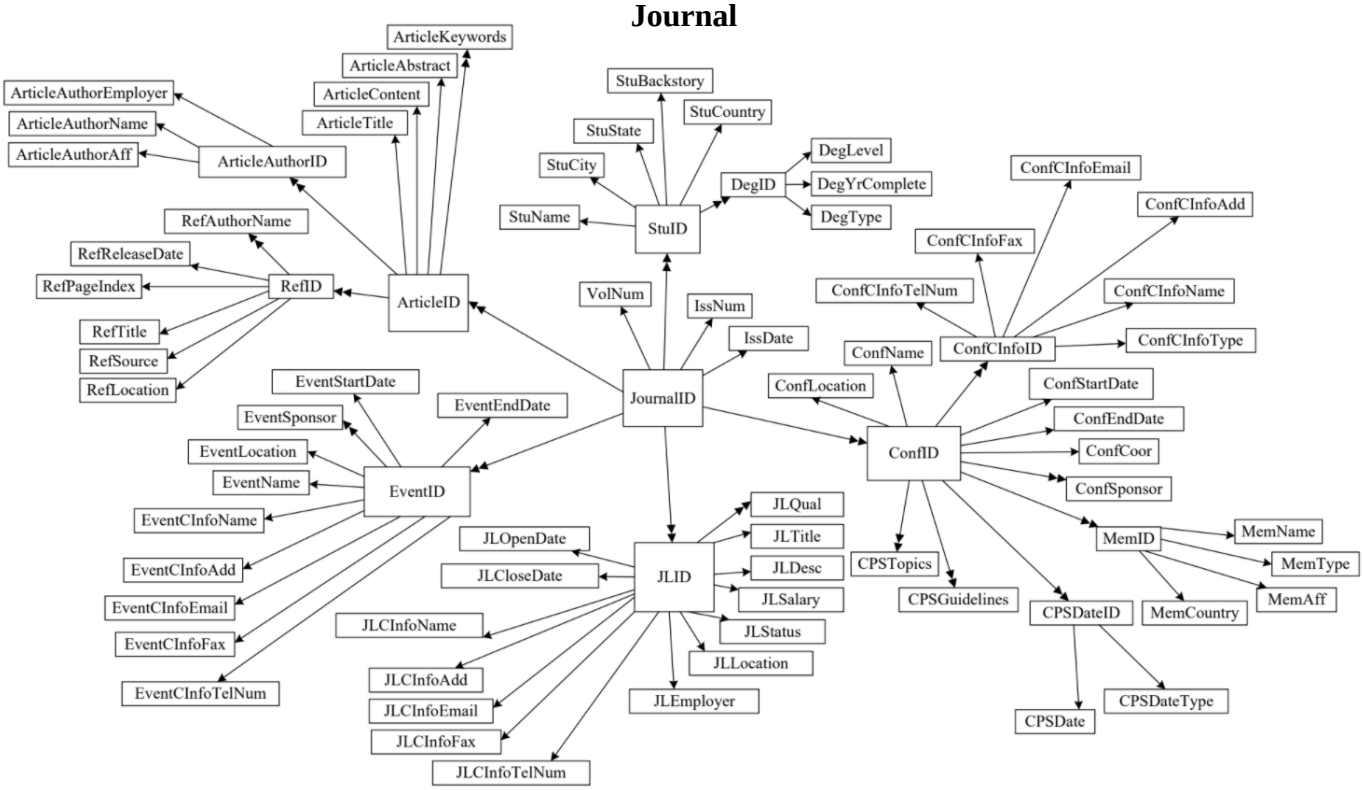



*Figure 2: Reduced FD Diagram*

The Journal relation is already in reduced form, as it contains no transitive dependencies and all attributes directly connected to the primary key would be orphaned if their connections were removed.

## Normalization

### 1NF

First Normal Form

### Journal

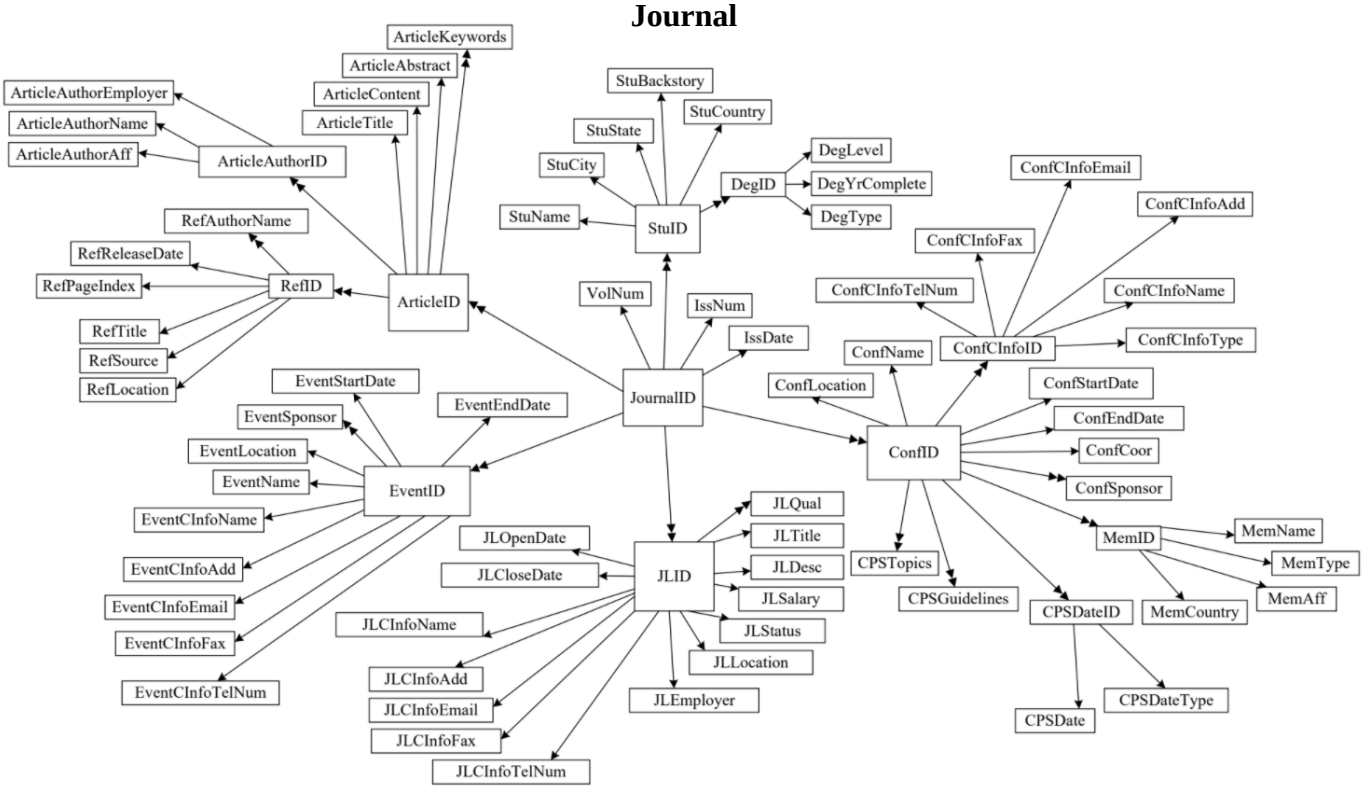



*Figure 3: Diagram for relation in 1NF*

Every Universal Relation Diagram is in first normal form (1NF) because in order to be a valid relation, all attributes must be atomic.

## 2NF

Second Normal Form

A relation is in second normal form (2NF) if it is in 1NF and every non-prime attribute is fully functionally dependent on the primary key.

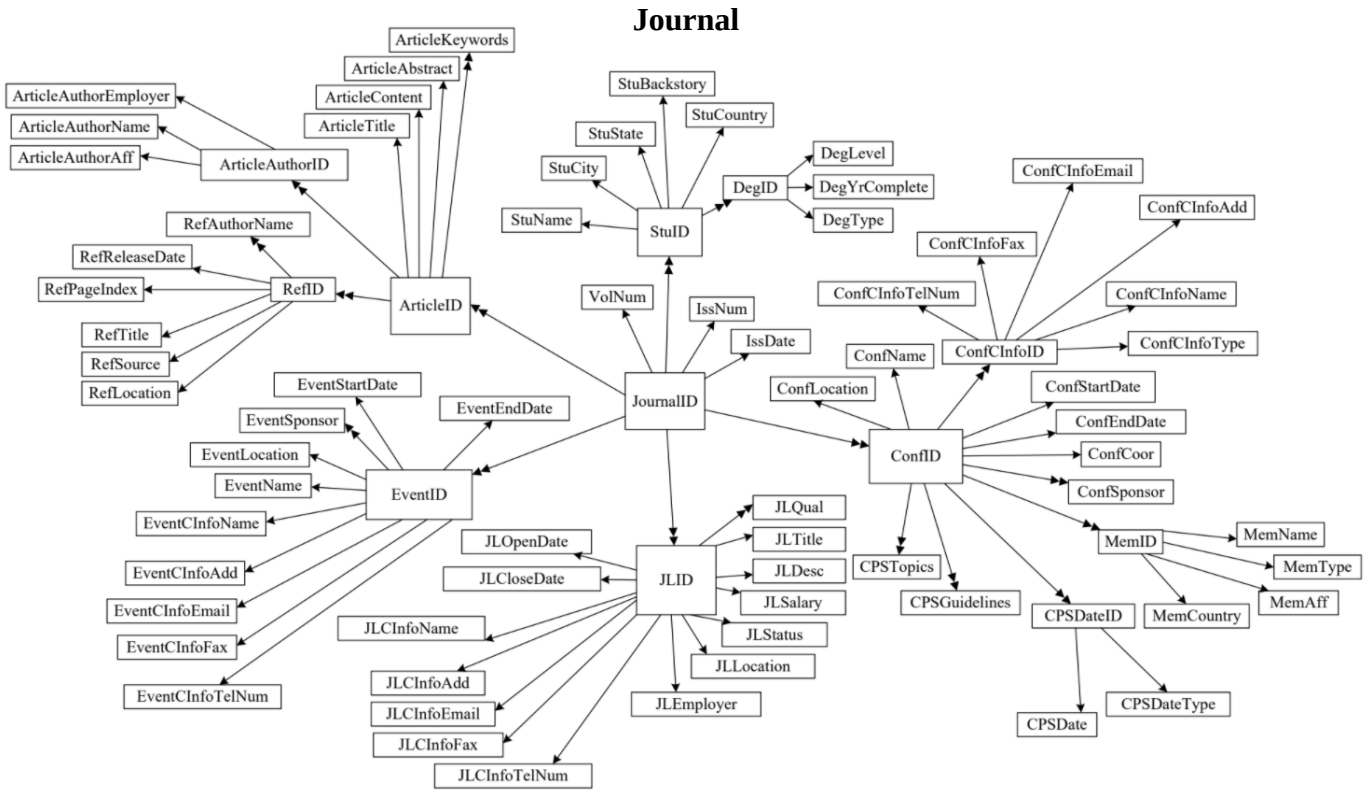



*Figure 4: Diagram for relation in 2NF*

The Journal relation is already in 2NF.

**3NF**

Third Normal Form

A relation is in third normal form (3NF) if it is in 2NF and every non-prime attribute is non-transitively dependent on the primary key.

To get Journal into 3NF, we break it down as follows:

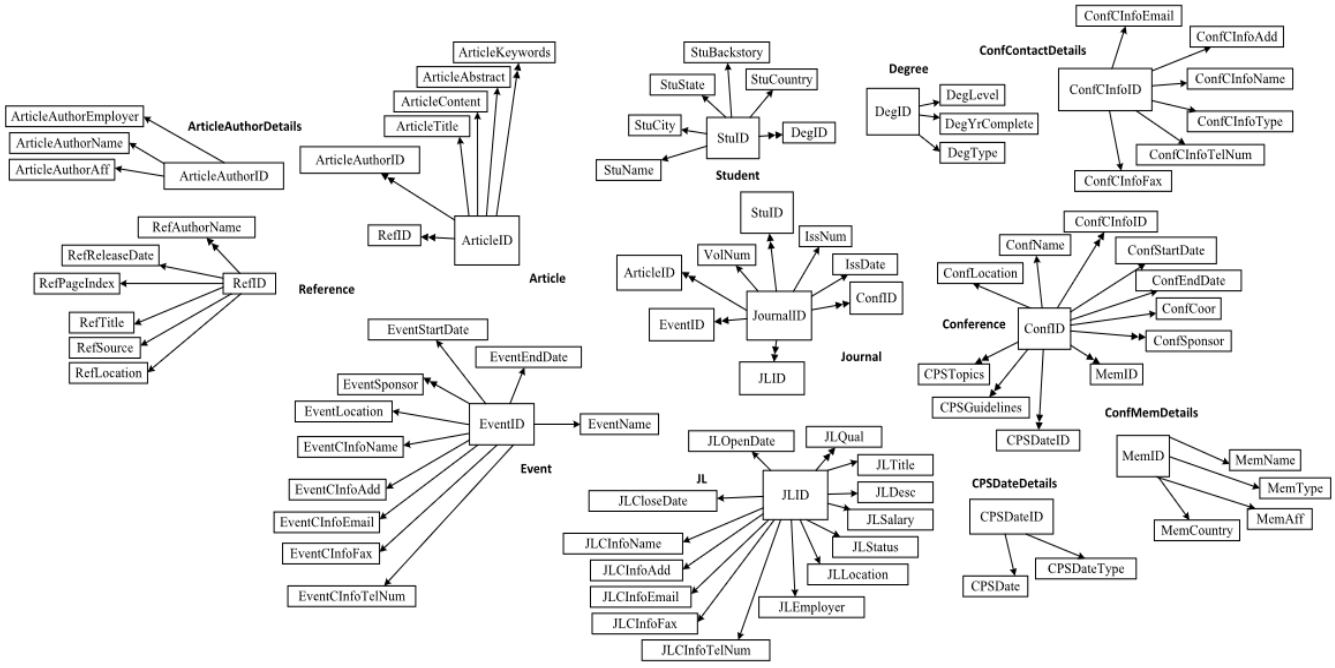



*Figure 5: Diagrams for relations in 3NF*

Journal, Article, ArticleAuthorDetails, Reference, Event, Student, JL, Degree, Conference, ConfContactDetails, ConfMemDetails, and CPSDateDetails are all now in 3NF.

## BCNF

Boyce-Codd Normal Form

A relation is in Boyce-Codd normal form (BCNF) if and only if every determinant is a candidate key.

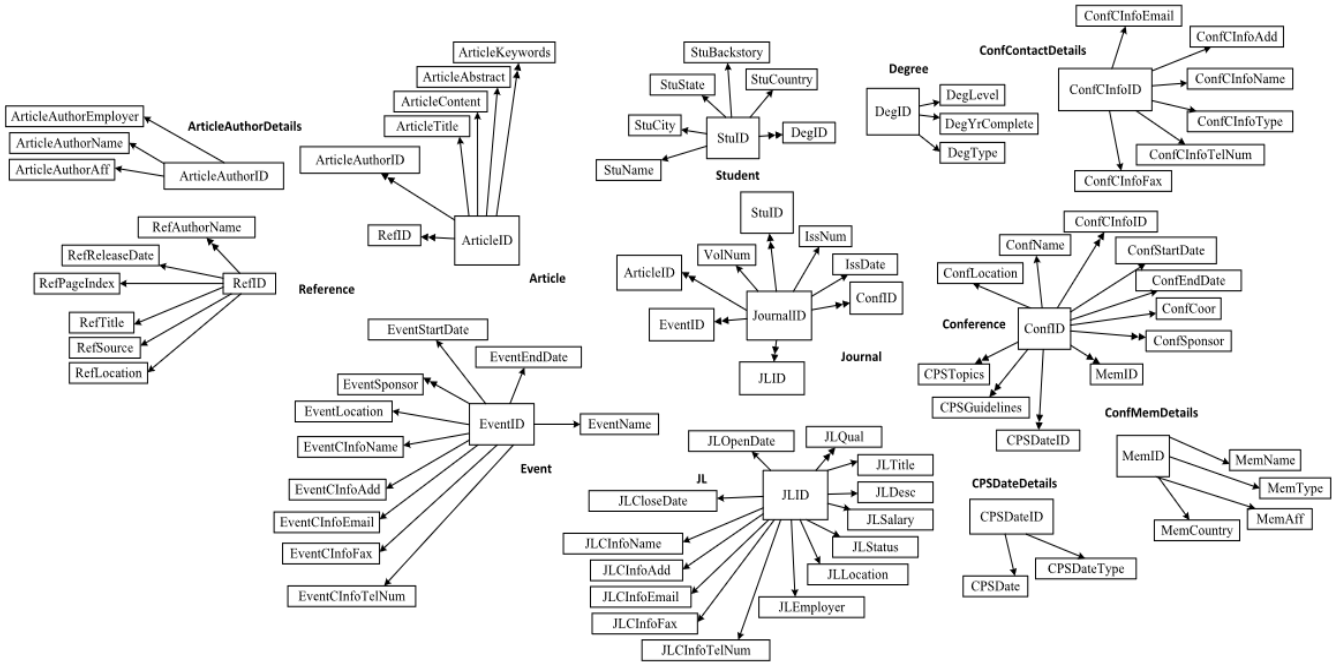



*Figure 6:Diagrams for relations in BCNF*

Journal, Article, ArticleAuthorDetails, Reference, Event, Student, JL, Degree, Conference, ConfContactDetails, ConfMemDetails, and CPSDateDetails are already in BCNF.

**4NF**

Fourth Normal Form

A relation R is in fourth normal form (4NF) if whenever a non-trivial MVD such as X→→Y holds in R, then X is the super-key of the relation R.

An MVD is considered trivial if (X union Y) contains all of the attributes in the relation R.

To get Journal, Article, Reference, Event, Student, JL, and Conference into 4NF, we break them down by decomposing all MVDs into trivial MVDs as follows:

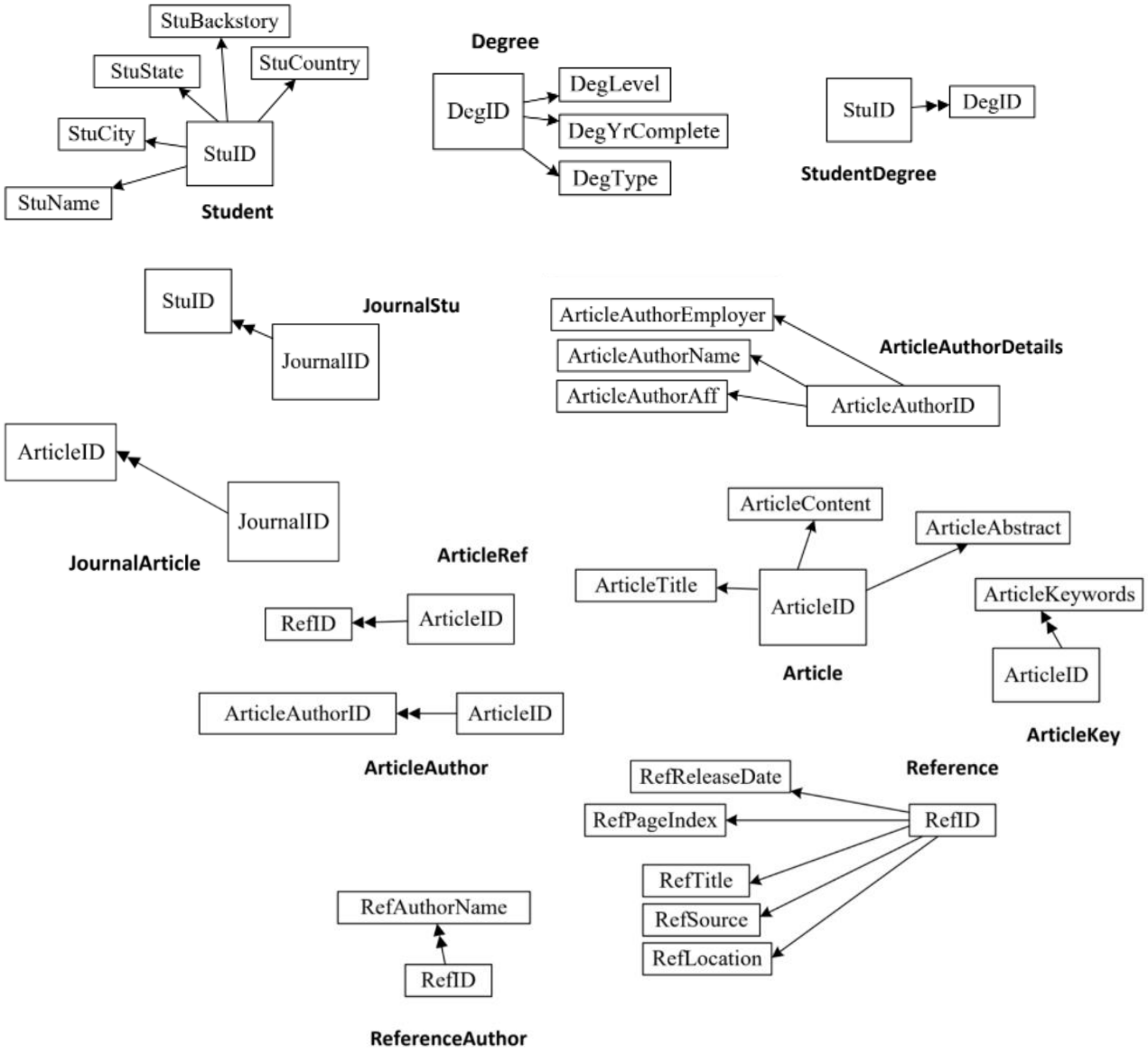



*Figure 7: Diagrams for relations in 4NF*

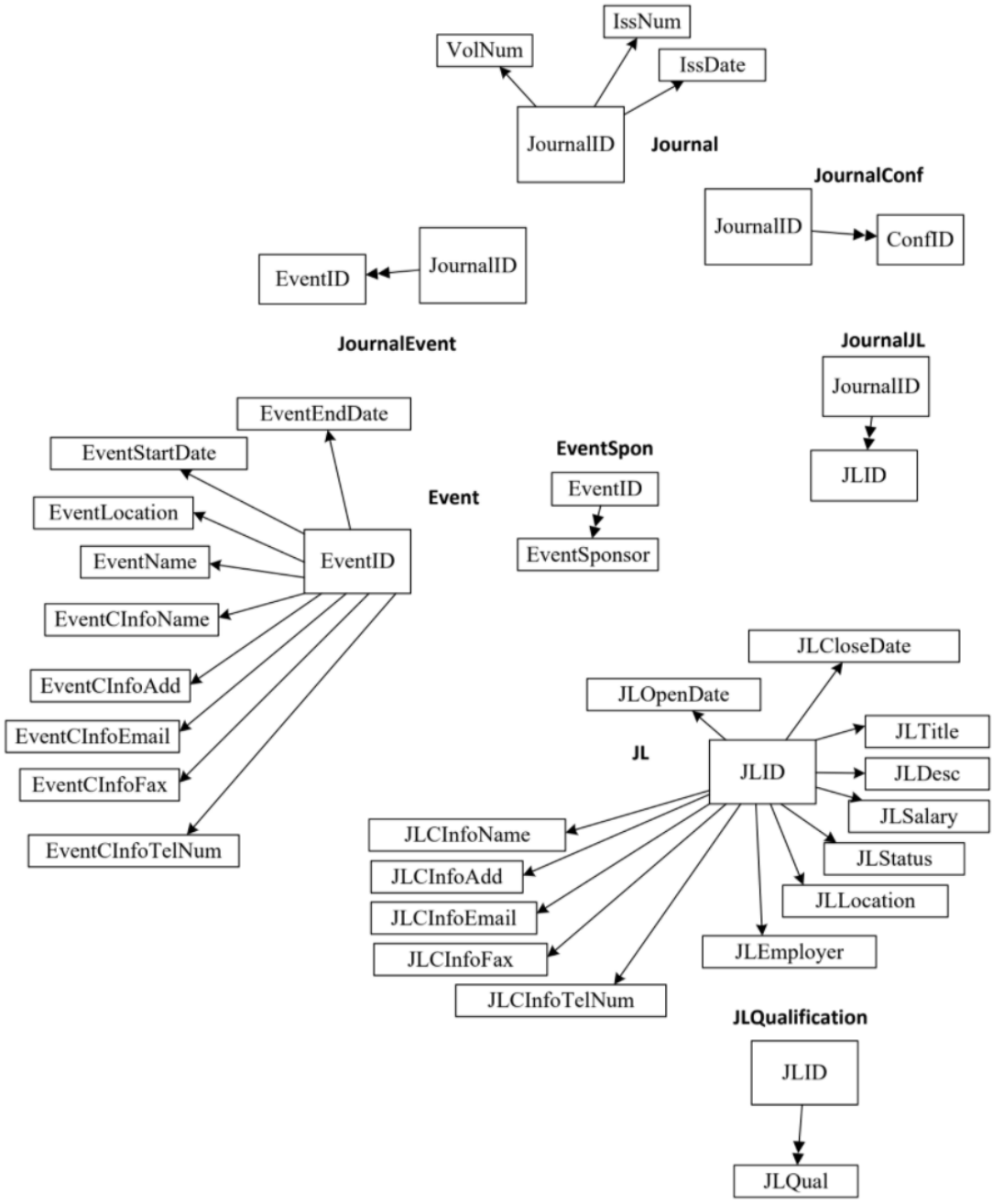



*Figure 8:Diagrams for relations in 4NF (cont.)*

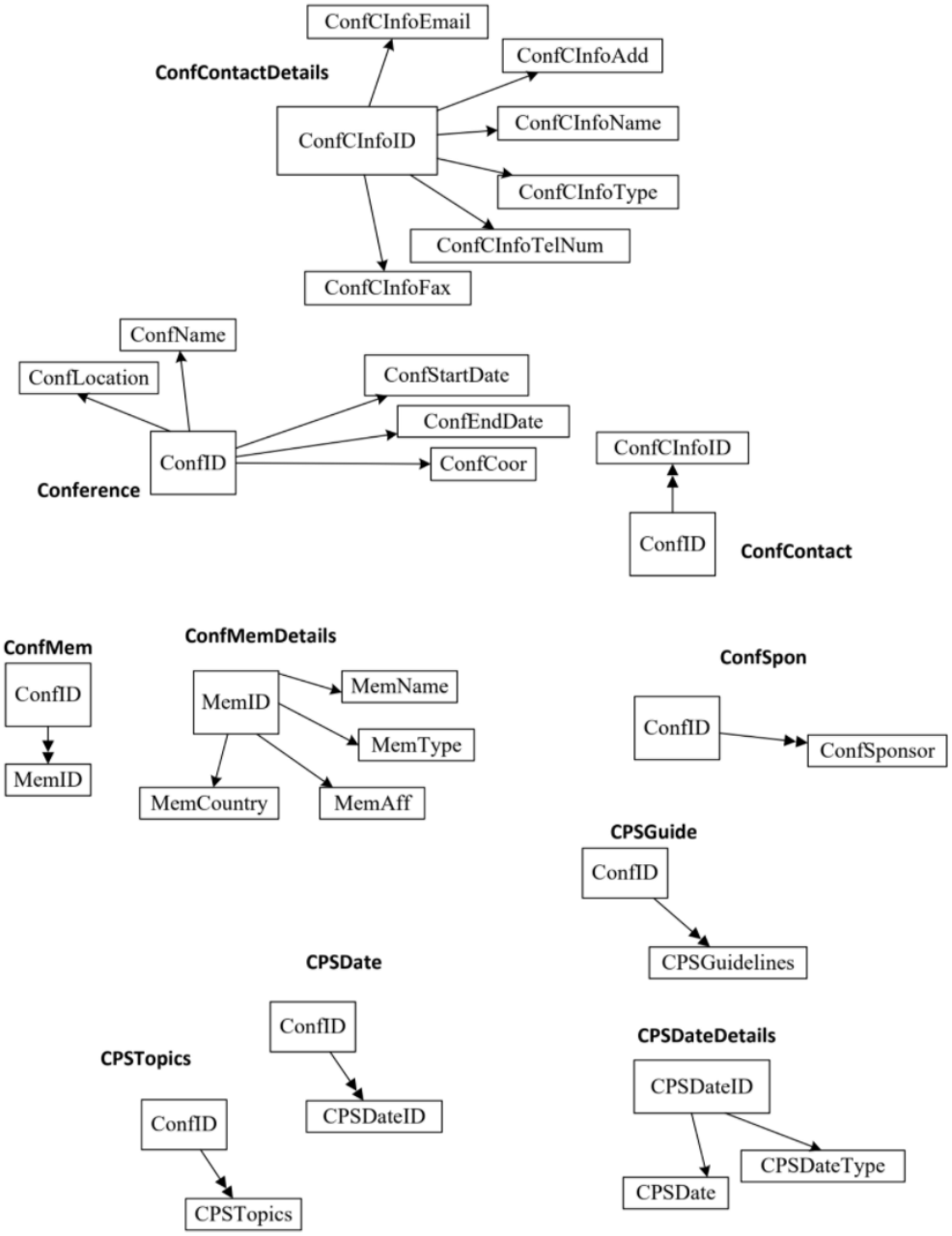



*Figure 9: Diagrams for relations in 4NF (cont. 2)*

The normalization outcome is 30 relations.

**Database Schema**

1. Degree(DegID, DegType, DegLevel, DegYrComplete)
2. Student(StuID, StuName, StuBackstory, StuCity, StuState, StuCountry)
3. StudentDegree(StuID, DegID) (MVD)
4. JournalStu(JournalID, StuID) (MVD)
5. ArticleAuthorDetails(ArticleAuthorID, ArticleAuthorName, ArticleAuthorEmployer, ArticleAuthorAff)
6. ArticleRef(ArticleID, RefID) (MVD)
7. Article(ArticleID, ArticleTitle, ArticleAbstract, ArticleContent)
8. ArticleAuthor(ArticleID, ArticleAuthorID) (MVD)
9. ArticleKey(ArticleID, ArticleKeywords) (MVD)
10. Reference(RefID, RefReleaseDate, RefPageIndex, RefTitle, RefSource, RefLocation)
11. ReferenceAuthor(RefID, RefAuthorName) (MVD)
12. JournalArticle(JournalID, ArticleID) (MVD)
13. Journal(JournalID, VolNum, IssNum, IssDate)
14. JournalConf(JournalID, ConfID) (MVD)
15. JournalEvent(JournalID, EventID) (MVD)
16. JournalJL(JournalID, JLID) (MVD)
17. Event(EventID, EventEndDate, EventStartDate, EventLocation, EventName, EventCInfoName, EventCInfoAdd, EventCInfoEmail, EventCInfoFax, EventCInfoTelNum)
18. EventSpon(EventID, EventSponsor) (MVD)
19. JL(JLID, JLOpenDate, JLTitle, JLDesc, JLSalary, JLStatus, JLLocation, JLEmployer, JLCloseDate, JLCInfoName, JLCInfoAdd, JLCInfoEmail, JLCInfoFax, JLCInfoTelNum))
20. JLQualification(JLID, JLQual) (MVD)
21. ConfContactDetails(ConfCInfoID, ConfCInfoEmail, ConfCInfoAdd, ConfCInfoName, ConfCInfoType, ConfCInfoTelNum, ConfCInfoFax)
22. Conference(ConfID, ConfLocation, ConfName, ConfStartDate, ConfEndDate, ConfCoor)
23. ConfContact(ConfID, ConfCInfoID) (MVD)
24. ConfMemDetails(MemID, MemName, MemType, MemAff, MemCountry)

25. ConfSpon(ConfID, ConfSponsor) (MVD)
26. ConfMem(ConfID, MemID) (MVD)
27. CPSGuide(ConfID, CPSGuidelines) (MVD)
28. CPSDate(ConfID, CPSDateID) (MVD)
29. CPSTopics(ConfID, CPSTopics) (MVD)
30. CPSDateDetails(CPSDateID, CPSDateType, CPSDate)

**Appendix**

MINUTES OF THE MEETING

Date of Meeting: 3/12/2021 Start time: 3:30 pm End time: 5:30 pm

Name of members who were present:

Sam Wong

Jeel Patel

Hannah Jones

Tricia Reisman

William Fletcher

Name of members who were late (the amount of time that member was late):

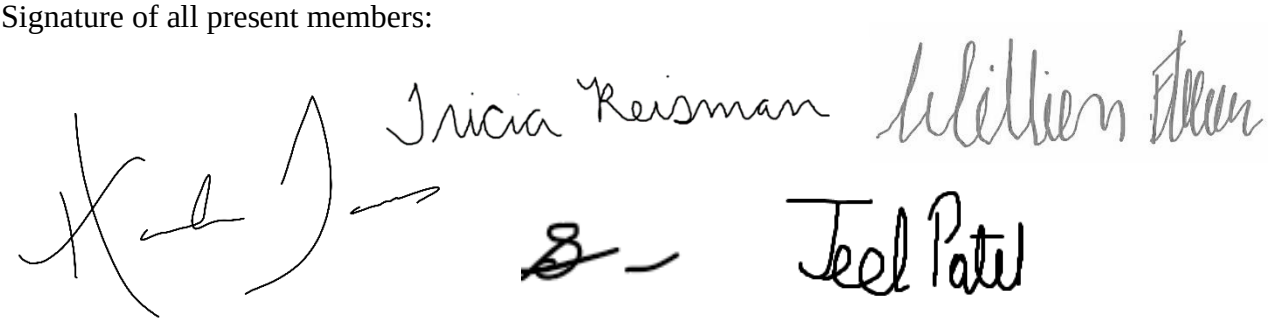
Members' duty assignments, and progress made during meeting:

| | | | |
|---|---|---|---|
| Name: Sam Wong | Duty: | Creation of semantic rules | Progress: 80% |
| Name: Jeel Patel | Duty: | | Progress: 80% |
| Name: Hannah Jones | Duty: | | Progress: 80% |
| Name: Tricia Reisman | Duty: | | Progress: 80% |
| Name: William Fletcher | Duty: | | Progress: 80% |

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: 3/15/21 – 11:00 am

Signature of all present members:



# MINUTES OF THE MEETING

Date of Meeting: 3/15/2021 Start time: 11:00 am End time: 1:00 pm

Name of members who were present:

Sam Wong

Jeel Patel

Hannah Jones

Tricia Reisman

William Fletcher

Name of members who were late (the amount of time that member was late):

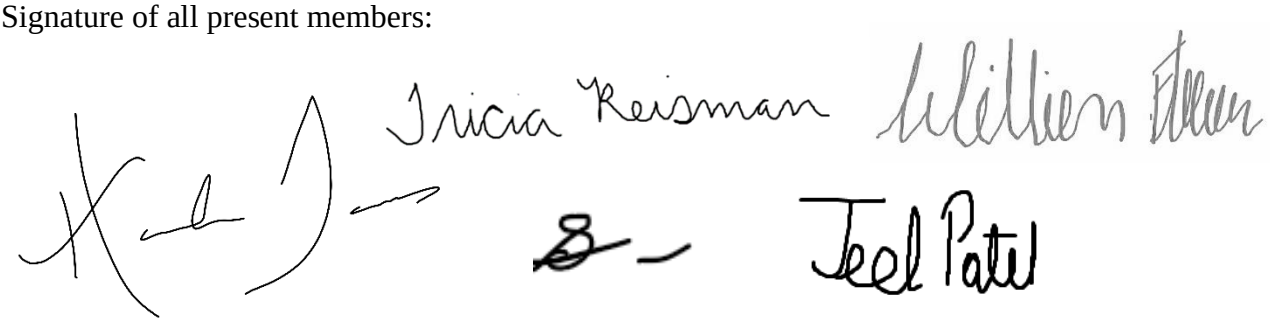
Members' duty assignments, and progress made during meeting:

| | | | |
|---|---|---|---|
| Name: Sam Wong | Duty: | Went through semantic rules to double check and FD Creation | Progress: 100% |
| Name: Jeel Patel | Duty: | | Progress: 100% |
| Name: Hannah Jones | Duty: | | Progress: 100% |
| Name: Tricia Reisman | Duty: | | Progress: 100% |
| Name: William Fletcher | Duty: | | Progress: 100% |

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: 3/17/21 – 12:30 am

Signature of all present members:



# MINUTES OF THE MEETING

Date of Meeting: 3/17/2021 Start time: 12:30 pm End time: 2:30 pm

Name of members who were present:

Sam Wong

Jeel Patel

Hannah Jones

Tricia Reisman

William Fletcher

Name of members who were late (the amount of time that member was late):

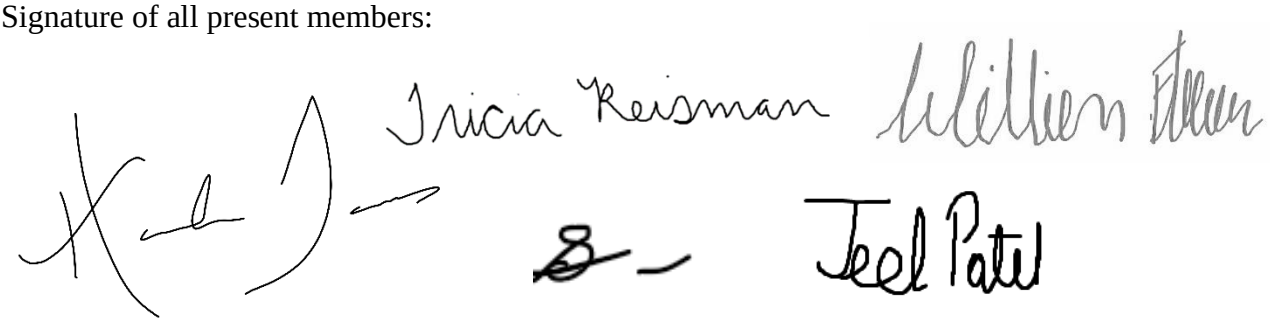
Members' duty assignments, and progress made during meeting:

| | | |
|---|---|---|
| Name: Sam Wong | Duty: Table of Attributes | Progress: 20% |
| Name: Jeel Patel | Duty: Table of Attributes | Progress: 20% |
| Name: Hannah Jones | Duty: Initial Diagram | Progress: 20% |
| Name: Tricia Reisman | Duty: Table of Attributes | Progress: 20% |
| Name: William Fletcher | Duty: Table of Attributes | Progress: 20% |

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: 3/19/21 – 11:00 am

Signature of all present members:



# MINUTES OF THE MEETING

Date of Meeting: 3/19/2021 Start time: 11:00 am End time: 4:00 pm

Name of members who were present:

Sam Wong

Jeel Patel

Hannah Jones

Tricia Reisman

William Fletcher

Name of members who were late (the amount of time that member was late):

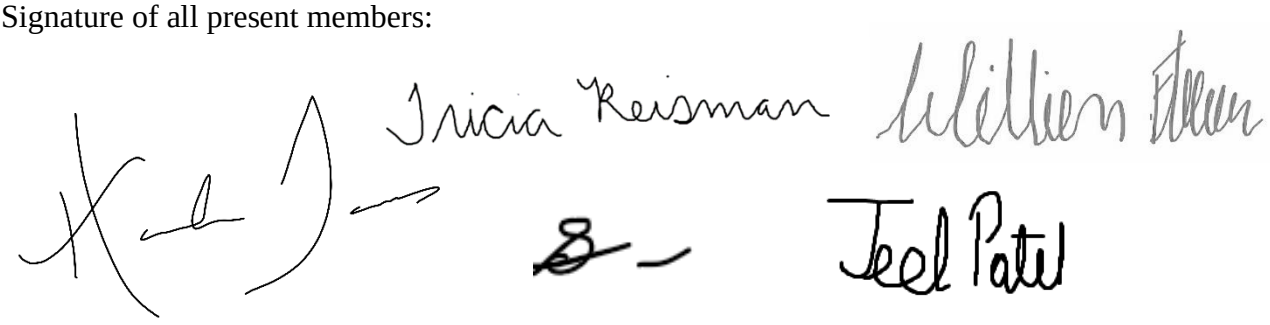
Members' duty assignments, and progress made during meeting:

| | | | |
|---|---|---|---|
| Name: Sam Wong | Duty: | Reduced UR and 1NF-4NF | Progress: 100% |
| Name: Jeel Patel | Duty: | | Progress: 100% |
| Name: Hannah Jones | Duty: | | Progress: 100% |
| Name: Tricia Reisman | Duty: | | Progress: 100% |
| Name: William Fletcher | Duty: | | Progress: 100% |

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: 3/25/21 – 6:30 pm

Signature of all present members:



# MINUTES OF THE MEETING

Date of Meeting: 3/25/2021 Start time: 6:30 pm End time: 9:30 pm

Name of members who were present:

Sam Wong

Jeel Patel

Hannah Jones

Tricia Reisman

William Fletcher

Name of members who were late (the amount of time that member was late):

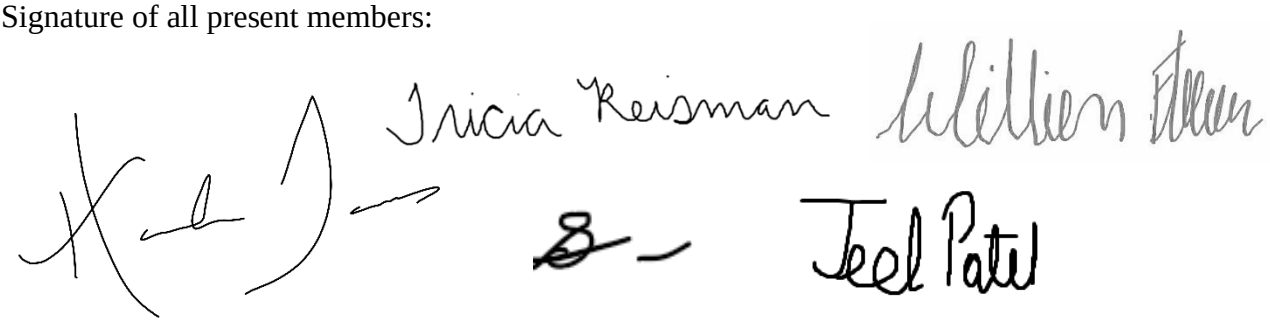
Members' duty assignments, and progress made during meeting:

| | | | |
|---|---|---|---|
| Name: Sam Wong | Duty: | Found problems and fixed them | Progress: 100% |
| Name: Jeel Patel | Duty: | | Progress: 100% |
| Name: Hannah Jones | Duty: | | Progress: 100% |
| Name: Tricia Reisman | Duty: | | Progress: 100% |
| Name: William Fletcher | Duty: | | Progress: 100% |

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: 3/27/21 – 6:30 pm

Signature of all present members:



# MINUTES OF THE MEETING

Date of Meeting: 3/27/2021 Start time: 6:30 pm End time: 7:00 pm

Name of members who were present:

Sam Wong

Jeel Patel

Hannah Jones

Tricia Reisman

William Fletcher

Name of members who were late (the amount of time that member was late):

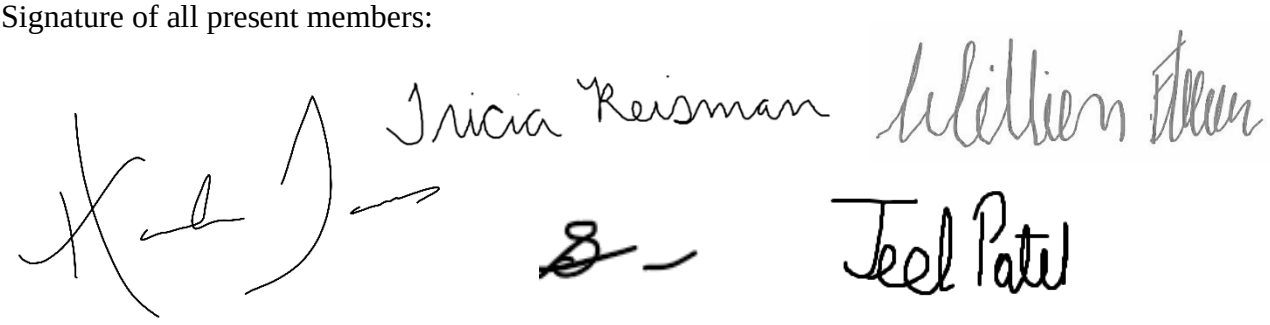
Members' duty assignments, and progress made during meeting:

| | | | |
|---|---|---|---|
| Name: Sam Wong | Duty: | Went through what had been completed to make sure all queries could be answered, and views could be complete | Progress: 100% |
| Name: Jeel Patel | Duty: | | Progress: 100% |
| Name: Hannah Jones | Duty: | | Progress: 100% |
| Name: Tricia Reisman | Duty: | | Progress: 100% |
| Name: William Fletcher | Duty: | | Progress: 100% |

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: 3/29/21 – 8:00 pm

Signature of all present members:



# MINUTES OF THE MEETING

Date of Meeting: 3/29/2021 Start time: 8:00 pm End time: 9:00 pm

Name of members who were present:

Sam Wong

Jeel Patel

Hannah Jones

Tricia Reisman

William Fletcher

Name of members who were late (the amount of time that member was late):

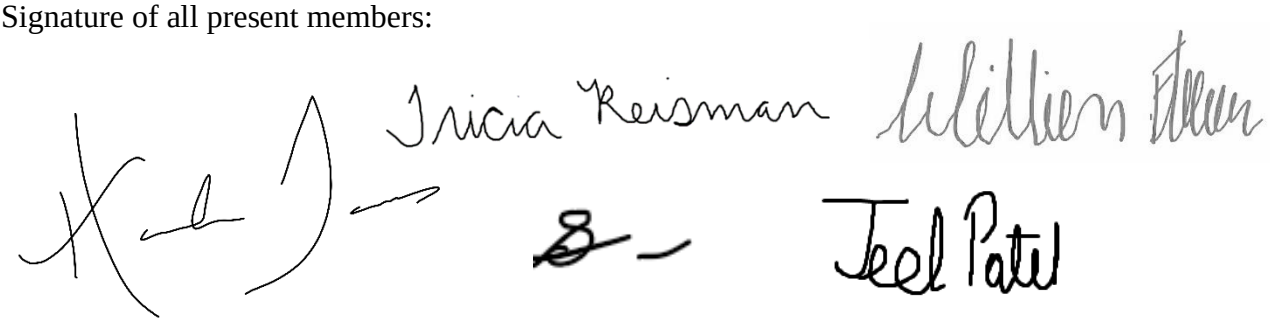
Members' duty assignments, and progress made during meeting:

| | | | |
|---|---|---|---|
| Name: Sam Wong | Duty: | Divided up queries and CSVs | Progress: 20% |
| Name: Jeel Patel | Duty: | | Progress: 20% |
| Name: Hannah Jones | Duty: | | Progress: 20% |
| Name: Tricia Reisman | Duty: | | Progress: 20% |
| Name: William Fletcher | Duty: | | Progress: 20% |

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: 4/2/21 – 6:00 pm

Signature of all present members:



# MINUTES OF THE MEETING

Date of Meeting: 4/2/2021 Start time: 6:00 pm End time: 8:00 pm

Name of members who were present:

Sam Wong

Jeel Patel

Hannah Jones

Tricia Reisman

William Fletcher

Name of members who were late (the amount of time that member was late):

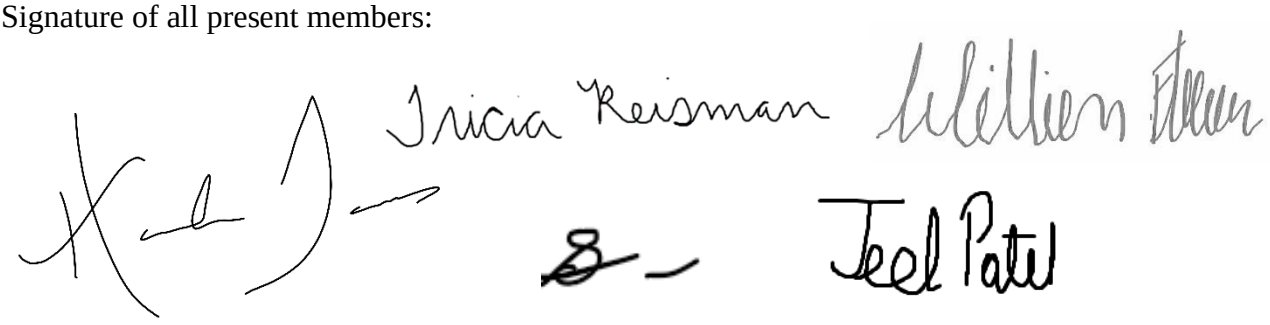
Members' duty assignments, and progress made during meeting:

| | | | |
|---|---|---|---|
| Name: Sam Wong | Duty: | } CSVs, queries, and views | Progress: 80% |
| Name: Jeel Patel | Duty: | | Progress: 80% |
| Name: Hannah Jones | Duty: | | Progress: 80% |
| Name: Tricia Reisman | Duty: | | Progress: 80% |
| Name: William Fletcher | Duty: | | Progress: 80% |

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: 4/3/21 – 3:30 pm

Signature of all present members:



# MINUTES OF THE MEETING

Date of Meeting: 4/3/2021 Start time: 3:30 pm End time: 5:00 pm

Name of members who were present:

Sam Wong

Jeel Patel

Hannah Jones

Tricia Reisman

William Fletcher

Name of members who were late (the amount of time that member was late):

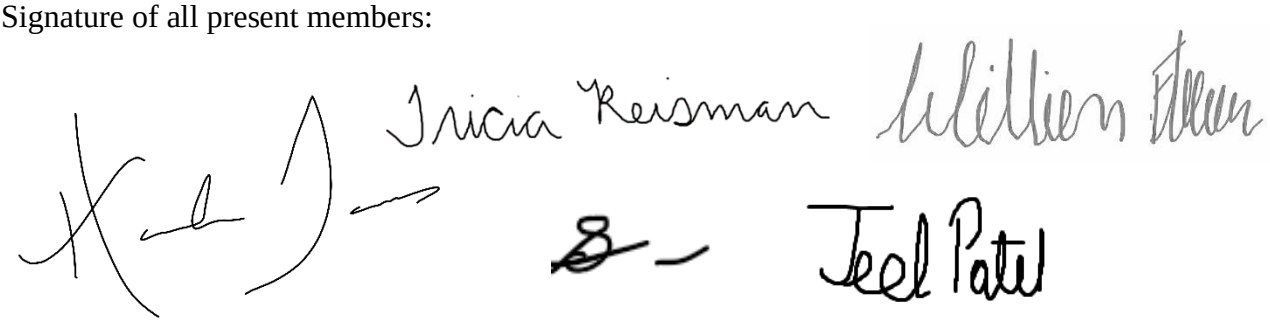
Members' duty assignments, and progress made during meeting:

| | | | |
|---|---|---|---|
| Name: Sam Wong | Duty: | } CSVs, queries, and views | Progress: 100% |
| Name: Jeel Patel | Duty: | | Progress: 100% |
| Name: Hannah Jones | Duty: | | Progress: 100% |
| Name: Tricia Reisman | Duty: | | Progress: 100% |
| Name: William Fletcher | Duty: | | Progress: 100% |

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: 4/8/21 – 6:30pm (if needed)

Signature of all present members:



# MINUTES OF THE MEETING

Date of Meeting: 4/9/2021 Start time: 11:00 am End time: 2:00 pm

Name of members who were present:

Hannah Jones

Tricia Reisman

Name of members who were late (the amount of time that member was late):

Members' duty assignments, and progress made during meeting:

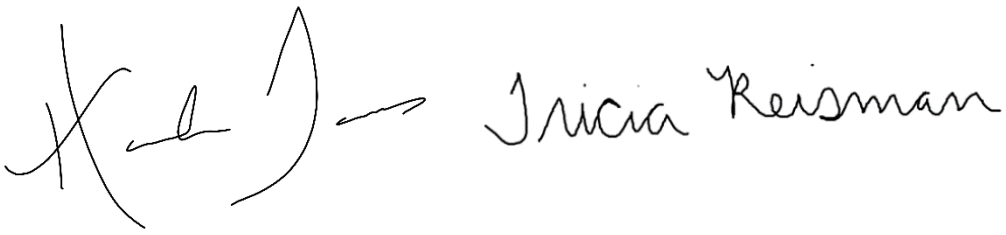
Name: Hannah Jones Duty: } People in charge of formatting and quality control making sure everything looks correct Progress: 100%

Name: Tricia Reisman Duty: } Progress: 100%

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: 4/11/21 – 4:00 pm (if needed)

Signature of all present members:



# MINUTES OF THE MEETING

Date of Meeting: 4/11/2021 Start time: 4:00 pm End time: 6:00 pm

Name of members who were present:

Hannah Jones

Tricia Reisman

Name of members who were late (the amount of time that member was late):

Members' duty assignments, and progress made during meeting:

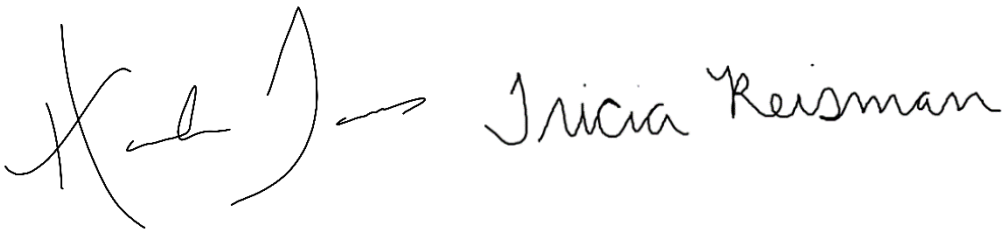
Name: Hannah Jones Duty: } People in charge of formatting and quality control making sure everything looks correct Progress: 100%

Name: Tricia Reisman Duty: } Progress: 100%

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: none (unless emergecy update needs to happen)

Signature of all present members:



# MINUTES OF THE MEETING

Date of Meeting: 4/11/2021 Start time: 7:30 pm End time: 11:10 pm

Name of members who were present:

Sam Wong

Jeel Patel

Hannah Jones

Tricia Reisman

William Fletcher

Name of members who were late (the amount of time that member was late):

Members' duty assignments, and progress made during meeting:

| | | |
|---|---|---|
| Name: Sam Wong | Duty: } Last minute corrections and touch ups | Progress: 100% |
| Name: Jeel Patel | Duty: | Progress: 100% |
| Name: Hannah Jones | Duty: | Progress: 100% |
| Name: Tricia Reisman | Duty: | Progress: 100% |
| Name: William Fletcher | Duty: Remotely participated | Progress: 100% |

(any unfinished duties assigned to finish before next meeting)

Time set for the next meeting: none (unless emergecy update needs to happen)

Signature of all present members: