Group 3
Assignment 1:

1. Abstract

Dead Prime Minister High School (DPMHS), a new educational facility under construction in Porquis Junction, ON, is poised to become a leading institution with a comprehensive and efficient information system to support its operations. Under the leadership of Jesse Strictman, DPMHS aims to establish a robust database to manage the myriad aspects of student and school administration. The goal of the database is to provide a seamless and integrated system that ensures accurate data management, easy retrieval of information, and comprehensive reporting capabilities. This will enable teachers, administrative staff, and the principal to effectively support students' academic and extracurricular activities, track their progress, and facilitate their post-secondary plans. By designing the database in the third normal form, we will ensure data integrity, reduce redundancy, and enhance the overall efficiency of the school's information systems.

2. Entities

- **Student:**
  - This entity is used to keep track of the student's data
  - StudentID, FirstName,LastName,Address,BirthDate,Gender,Email
- **Teacher:**
  - This entity is used to keep track of the teacher's courses
  - TeacherID, FirstName,LastName,Address,BirthDate,Gender,Email

- **LegalGuardian:**
  - This entity is used to keep track of student's legal guardian
  - GuardianID,FirstName,LastName,Address,BirthDate,Gender,Phone

- **Course:**
  - This entity is used to keep track of the courses taken by the student
  - CourseID, CourseName,CourseSection

- **Disciplinary actions:**
  - This entity is used to keep track of the disciplinary actions taken by the student
  - IncidentID, Date, Type

- **Test:**
  - This entity is an associative entity between Student and Courses
  - TestID, TestName, TestDate, TestResult, StudentID(FK), CourseID(FK)

- **Grade:**
  - This entity is used to keep track of the grades of the tests
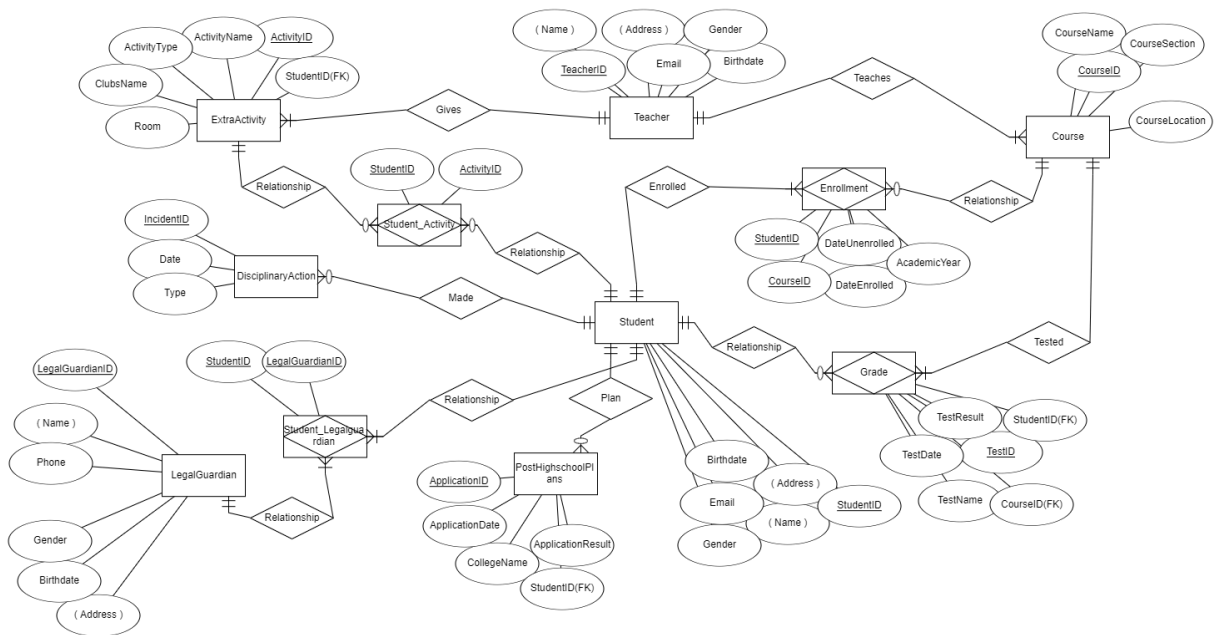 - CourseID, StudentID, StudentName, TestName, TestResult, TestDate

- **Extra activities:**
  - This entity is used to keep track of the extra-curricular activities taken by the students
  - <u>ActivityID</u>, StudentID, ActivityName, ActivityType, ClubsName, Room

- **Post-high school plans:**
  - This entity is used to keep track of the Post-high school plans that student applied to
  - <u>ApplicationID</u>, StudentID,CollegeName, ApplicationDate, ApplicationResult

- **Enrollment:**
  - This entity is an associative entity between Course and Student
  - <u>StudentID</u>,<u>CourseID</u>,AcademicYear, DateEnrolled, DateUnenrolled

- **Student_legalGuardian:**
  - This entity is an associative entity between Student and legalGuardian
  - <u>StudentID</u>, <u>LegalGuardianID</u>

3. A List of Business Rules :

- **Student:**
  - Students must be enrolled in one or more courses
  - Students must have at least one legal guardian
  - One student can have zero or many post highschool plans
  - One student might make zero or many disciplinary actions
  - One student can choose to be enrolled in at least one extra activities

- **Teacher:**
  - A teacher must teach at least one course
  - A teacher must teach at least one extra curricular activity

- **Legal Guardian:**
  - A Guardian must be assigned to at least one student

- **Course:**
  - A course may have zero or more students
  - A course has at least one test
  - A course can be taught by one teacher only

- **Disciplinary action:**
  - Zero or many students can be assigned to one action
  - One action is assigned to one student only
- **Grade:**
  - Test can be taken by zero or many students
  - Test is for one course only

- **Extra activities:**
  - One activity can have zero or many students
  - One extra curricular activity can be assigned to one teacher only
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- **Post-high school plans:**
  - One application belong to one student only

- **Enrollment:**
  - One enrollment is assigned to one student only

4. Conceptual Model

5. Physical diagram

EXTRAACTIVITY
- ActivityID INT
- ActivityName VARCHAR(45)
- ActivityType VARCHAR(45)
- ClubsName VARCHAR(45)
- Room VARCHAR(10)
- TEACHERS_TeacherID INT
- Indexes

TEACHERS
- TeacherID INT
- FirstName VARCHAR(45)
- LastName VARCHAR(45)
- StreetName VARCHAR(45)
- StreetNumber INT
- PostalCode VARCHAR(45)
- Email VARCHAR(45)
- Gender VARCHAR(45)
- BirthDate DATE
- Indexes

COURSE
- CourseID INT
- CourseLocation VARCHAR(45)
- CourseSection VARCHAR(20)
- CourseName VARCHAR(35)
- TEACHERS_TeacherID INT
- Indexes

STUDENT_ACTIVITY
- STUDENT_StudentID INT
- EXTRAACTIVITY_ActivityID INT
- Indexes

DISCIPLINARYACTION
- IncidentID INT
- Date DATE
- Type VARCHAR(45)
- STUDENT_StudentID INT
- Indexes

STUDENT
- StudentID INT
- FirstName VARCHAR(45)
- LastName VARCHAR(45)
- Email VARCHAR(45)
- Gender VARCHAR(10)
- StreetName VARCHAR(45)
- StreetNumber VARCHAR(10)
- PostalCode VARCHAR(7)
- Birthdate DATE
- Indexes

ENROLLMENT
- DateEnrolled DATE
- DateUnenrolled DATE
- AcademicYear YEAR
- STUDENT_StudentID INT
- COURSE_CourseID INT
- Indexes

LEGALGUARDIAN
- LegalGuardianID INT
- FirstName VARCHAR(45)
- LastName VARCHAR(45)
- PhoneNumer VARCHAR(20)
- StreetName VARCHAR(45)
- StreetNumber VARCHAR(10)
- PostalCode VARCHAR(7)
- Gender VARCHAR(10)
- BirthDate DATE
- Indexes

STUDENT_LEGALGUARDIAN
- STUDENT_StudentID INT
- LEGALGUARDIAN_LegalGuardianID INT
- Indexes

POSTHIGHSCHOOLPLANS
- ApplicationID INT
- ApplicationDate DATE
- CollegeName VARCHAR(45)
- ApplicationResult VARCHAR(10)
- STUDENT_StudentID INT
- Indexes

GRADE
- TestID INT
- TestName VARCHAR(10)
- TestDate DATE
- TestResult DECIMAL(3,2)
- COURSE_CourseID INT
- STUDENT_StudentID INT
- Indexes