ProjectPart2

(a)

Department	(DName, CName, FNumber)
Primary Key	DName
Student	(Student_id, SName, Sinitials,)
Primary Key	Student_id
Major	(MName, DName, MCode)
Primary Key	MName
Alternate Key	MCode
Foreign Key	DName **references** Department(DName)
Event	(EName, SDate, EDate)
Primary Key	EName
StudentMajor	(Student_id, MName)
Primary key	Student_id, MName
Foregin key	Student_id **references** Student(Student_id)
Foregin key	MName **references** Major(MName)
StudentEvent	(EName, Student_id)
Primary key	Student_id, EName, DName
Foregin key	Student_id **references** Student(Student_id)
Foregin key	EName **references** Event(EName)
DepartEvent	(EName, DName)
Primary key	EName, DName
Foregin key	DName **references** Department(DName)

(b)

For Department:

1. There's no repeating value since each element in Department can only have one value.
2. There's no partial dependency since only department name can determine chair name and faculty number for that department.
3. There's no transitive dependency since only functionally relationship is DName →CName, FNumber.

For Student:

1. There's no repeating value since each element in Student can only have one value.
2. There's no partial dependency since only student_id can be primary key to determine name and initials.
3. There's a transitive dependency for SName and SInitials, if remove this from the table, the redundancy for the table will increase, so it should not be removed.

For Major:

1. There's no repeating value since each element in Major can only have one value.
2. There's no partial dependence since only MName can be primary key to determine name and initials.
3. There's no transitive dependence since one major only have one code and department name, however, a department name can have several code since a department offers several different majors.

For Event:

1. There's no repeating value since each element in Event can only have one value.
2. There's no partial dependence since only event event name can be primary key to determine start date.
3. There's no transitive dependence since SDate and EDate can have several repeating exist.

For StudentMajor, StudentEvent, DepartEvent:

There's only 2 element in these scheme, no element can be remove for reducing redundancy.

(c)

1. List the all majors under Computer department:
   (1) Use Department find Computer department.
   (2) Use DName = Science event as foreign key in Major find the majors.

2. List all department which host the Science event:
   (1) Use Event find Science event.
   (2) Use EName = Science event as foregin key in DepartEvent find the department.

3. List all student which attend the Science event:
   (1) Use Event find Science event.
   (2) Use EName = Science event as foregin key in StudentEvent find the student_id.
   (3) Use student_id get in step (2) find name of student in Student.

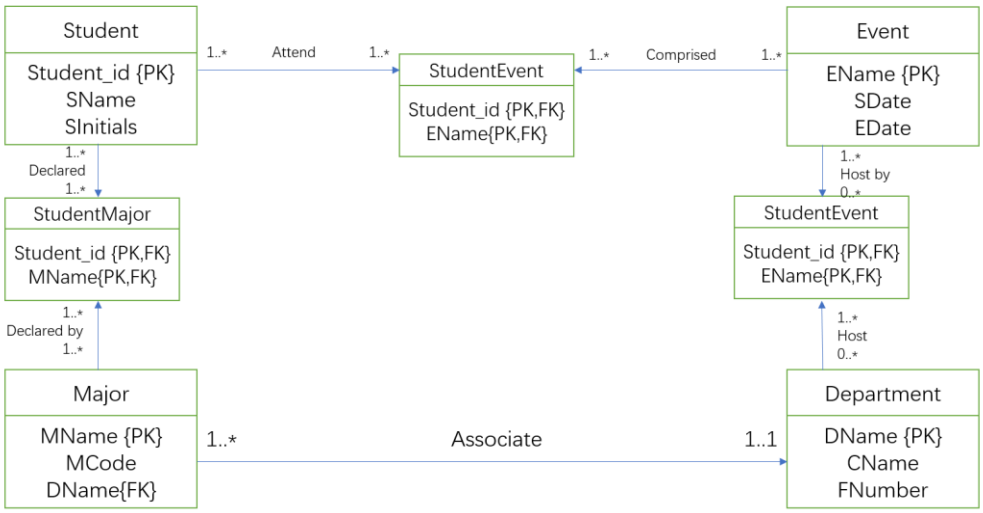
4. List all student who has choose Physics as major
   (1) Use StudentMajor find student_id where MName = Physics
   (2) Use student_id get in step (1) find the student name in Student.

5. List the details of all students who attended an event hosted by no department.
   (1) Use DepartEvent find EName where DName is null.
   (2) Use EName get in step (1) find student_id in StudentEvent.
   (3) Use student_id get in step (2) find student name in Student.

(d)

Major	(MName, DName, MCode)
Primary Key	MName
Alternate Key	MCode
Foreign Key	DName **references** Department(DName)
	ON UPDATE CASCADE ON DELETE NO ACTION
StudentMajor	(Student_id, MName)
Primary key	Student_id, MName
Foregin key	Student_id **references** Student(Student_id)
	ON UPDATE CASCADE ON DELETE CASCADE
Foregin key	MName **references** Major(MName)
	ON UPDATE CASCADE ON DELETE CASCADE
StudentEvent	(EName, Student_id,)
Primary key	Student_id, EName, DName
Foregin key	Student_id **references** Student(Student_id)
	ON UPDATE CASCADE ON DELETE CASCADE
Foregin key	EName **references** Event(EName)
	ON UPDATE CASCADE ON DELETE CASCADE
DepartEvent	(EName, DName)
Primary key	EName, DName
Foregin key	DName **references** Department(DName)
	ON UPDATE CASCADE ON DELETE SET NULL

(e)


Student
Student_id {PK}
SName
SInitials
1..*
Attend
1..*
StudentEvent
Student_id {PK,FK}
EName{PK,FK}
1..*
Comprised
1..*
Event
EName {PK}
SDate
EDate
1..*
Declared
1..*
StudentMajor
Student_id {PK,FK}
MName{PK,FK}
1..*
Host by
0..*
StudentEvent
Student_id {PK,FK}
EName{PK,FK}
1..*
Declared by
1..*
1..*
Host
0..*
Major
MName {PK}
MCode
DName{FK}
1..*
Associate
1..1
Department
DName {PK}
CName
FNumber