

# College/School Course administration

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## Scenario

- Construct the design element for a course ware management system that can be used to manage courses and classes for an organisation that specialize in providing training.
- The organisation offers a variety of courses in a variety of areas such as learning management techniques and understanding different software languages and technologies.
- Each course is made up of set of topics.
- Tutors in the organisation are assigned courses to teach according to the area that is specialized in and their availability.
- The organisation publish and maintain a calendar of different courses and assign tutors every year.
- There is a group of Course Administrator in the organisation to manage the courses including course content, assign courses to tutor and define the course schedule.
- The training organisation aim to use the Course-ware Management System to get a better control and visibility to the management of courses as also to streamline the process of generating and managing the schedule of the different courses.

## UML Diagrams with plantUML codes

### 1) Class Diagram

*PlantUML code:*

@startuml

```
class "Course Administrator" {
    +name
    +password
    +id
    --
    +ManageCourse()
    +ViewCourse()
    +ManageTopic()
    +assignTutor()
    +ViewTutor()
    +ManageTutorInfo()
    +ManageStudent()
    +ViewStudent()
}
```

```
class "Student" {
    +studentId
    +studentname
    +qualification
}
```

```
+contact_no
+emailId
+addr
--
+ViewStudentInfo()
+DeleteStudentInfo()
+ModifyStudentInfo()
+CreateStudent()
+ViewAllStudent()
}
```

```
class "Tutor" {
    +tutorname
    +tutorid
    +tutorpassword
    --
    +ViewTutorInfo()
    +CreateTutorInfo()
    +RenameTutor()
    +CreateTutor()
}
```

```
class "CourseCalender" {
    +day
    +starttime
    +endtime
    +startday
    +endday
    +tutorname
    --
    +ViewCourseCalender()
    +ModifyCourseCalender()
    +DeleteCourseCalender()
    +CreateCourseCalender()
}
```

```
class "Course" {
    +coursename
    +courseid
    --
    +ViewCourse()
    +ModifyCourse()
    +RemoveCourse()
    +CreateCourse()
}
```

```
class "Topic" {
    +Topicname
    +Topicid
}
```

```

+Content
--
+ManageTopic()
+ViewTopic()
+CreateTopic()
+RenameTopic()
+ViewTopicInfo()
}

```

```

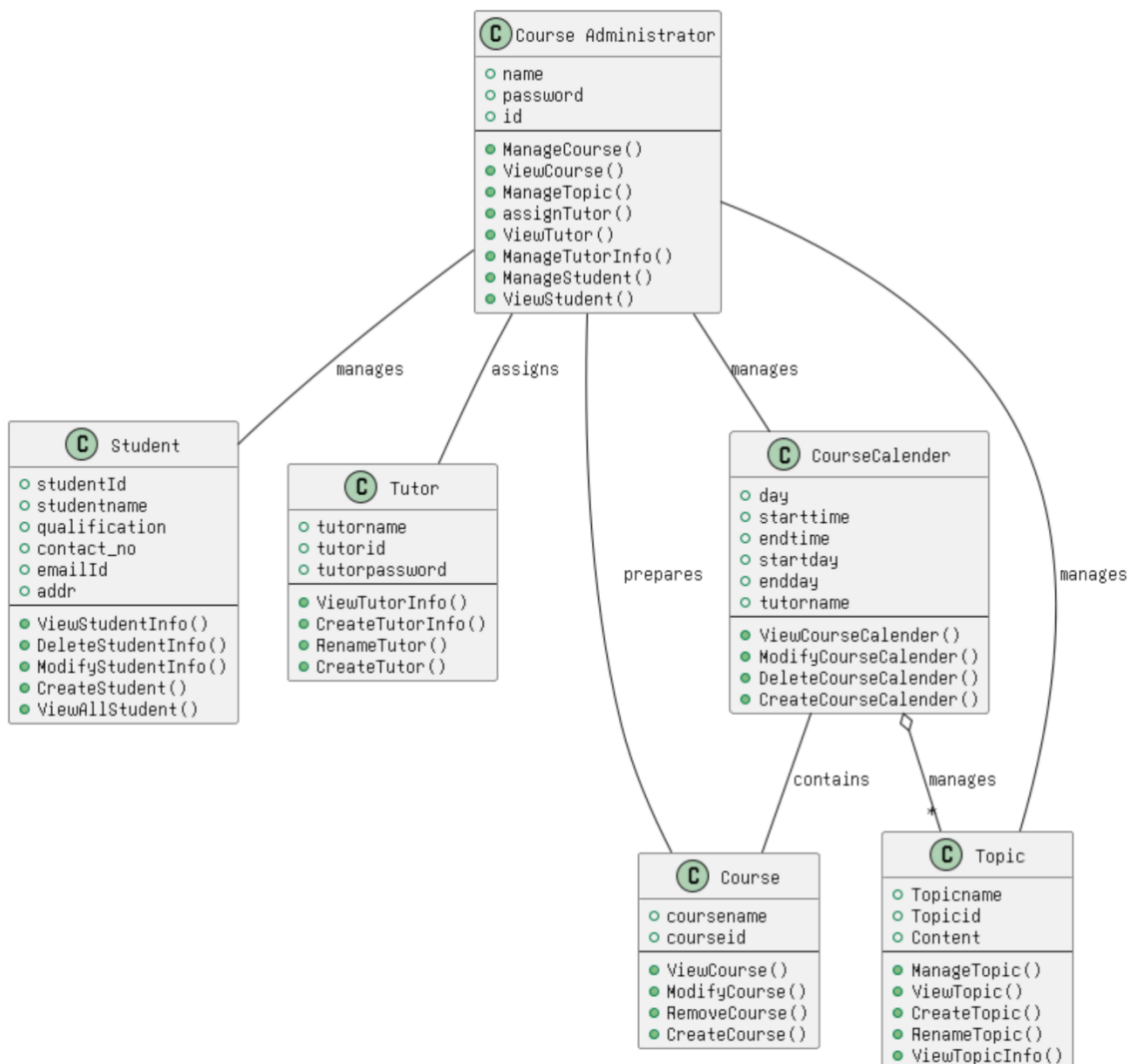
"Course Administrator" -- "Student" : manages
"Course Administrator" -- "Tutor" : assigns
"Course Administrator" -- "Topic" : manages
"Course Administrator" -- "CourseCalender" : manages
"Course Administrator" -- "Course" : prepares

"CourseCalender" -- "Course" : contains
"CourseCalender" o-- "*" "Topic" : manages

```

@enduml

Diagram:



## 2) Sequence Diagram

*PlantUML code:*

```
@startuml
actor Administrator
participant "Course Management System" as CMS
participant Database

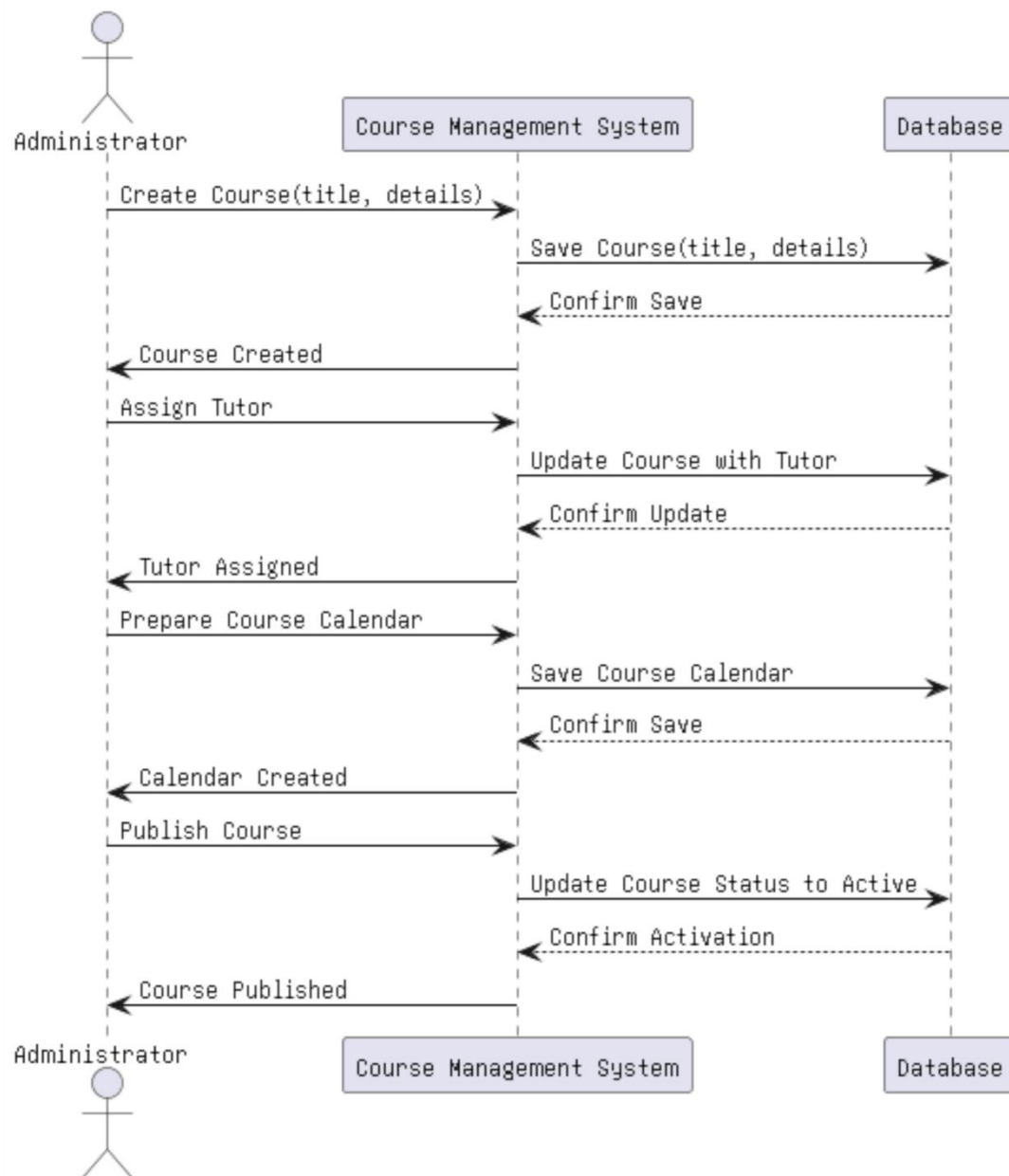
Administrator -> CMS : Create Course(title, details)
CMS -> Database : Save Course(title, details)
Database --> CMS : Confirm Save
CMS -> Administrator : Course Created

Administrator -> CMS : Assign Tutor
CMS -> Database : Update Course with Tutor
Database --> CMS : Confirm Update
CMS -> Administrator : Tutor Assigned

Administrator -> CMS : Prepare Course Calendar
CMS -> Database : Save Course Calendar
Database --> CMS : Confirm Save
CMS -> Administrator : Calendar Created

Administrator -> CMS : Publish Course
CMS -> Database : Update Course Status to Active
Database --> CMS : Confirm Activation
CMS -> Administrator : Course Published
@enduml
```

*Diagram:*



### 3) Use Case Diagram

PlantUML code:

```
@startuml
```

```
left to right direction
```

```
actor STUDENT
```

```
actor TUTOR
```

```
actor ADMINISTRATOR
```

```
rectangle "System" {
```

```
    usecase "assign course to tutor" as U1
```

```

usecase "view tutor" as U2
usecase "view course calender" as U3
usecase "manage course" as U4
usecase "view course" as U5
usecase "view student" as U6
usecase "manage topics for course" as U7
usecase "manage tutor information" as U8
usecase "manage student - tutor" as U9
}

```

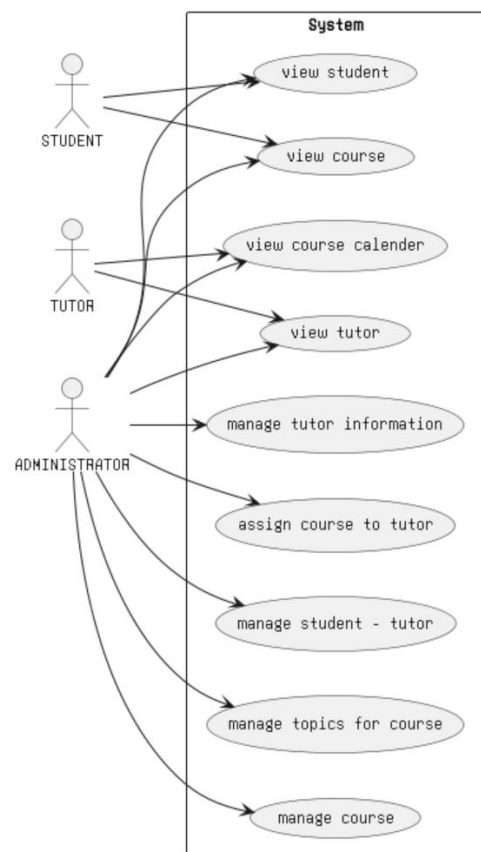
```

STUDENT --> U5
STUDENT --> U6
TUTOR --> U2
TUTOR --> U3
ADMINISTRATOR --> U1
ADMINISTRATOR --> U2
ADMINISTRATOR --> U3
ADMINISTRATOR --> U4
ADMINISTRATOR --> U5
ADMINISTRATOR --> U6
ADMINISTRATOR --> U7
ADMINISTRATOR --> U8
ADMINISTRATOR --> U9

```

@enduml

*Diagram:*



## 4) Activity Diagram

*PlantUML code:*

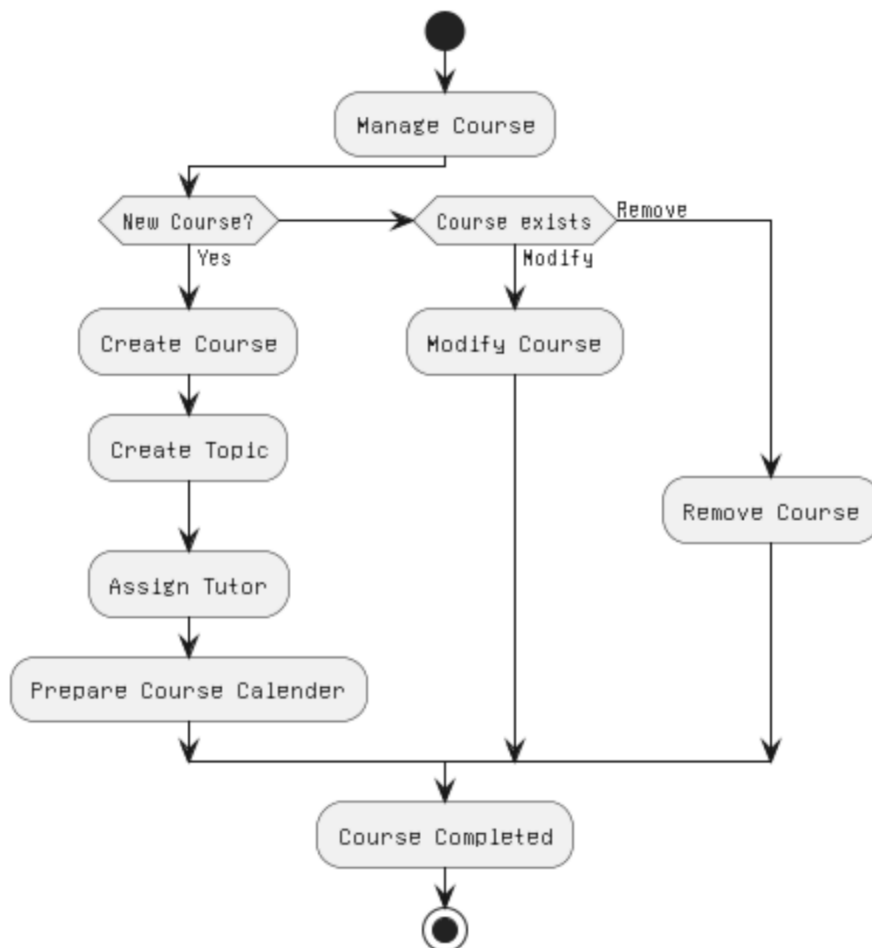
```
@startuml
start

:Manage Course;

if (New Course?) then (Yes)
    :Create Course;
    :Create Topic;
    :Assign Tutor;
    :Prepare Course Calender;
elseif (Course exists) then (Modify)
    :Modify Course;
else (Remove)
    :Remove Course;
endif

:Course Completed;
stop
@enduml
```

*Diagram:*



## 5) State Diagram

PlantUML code:

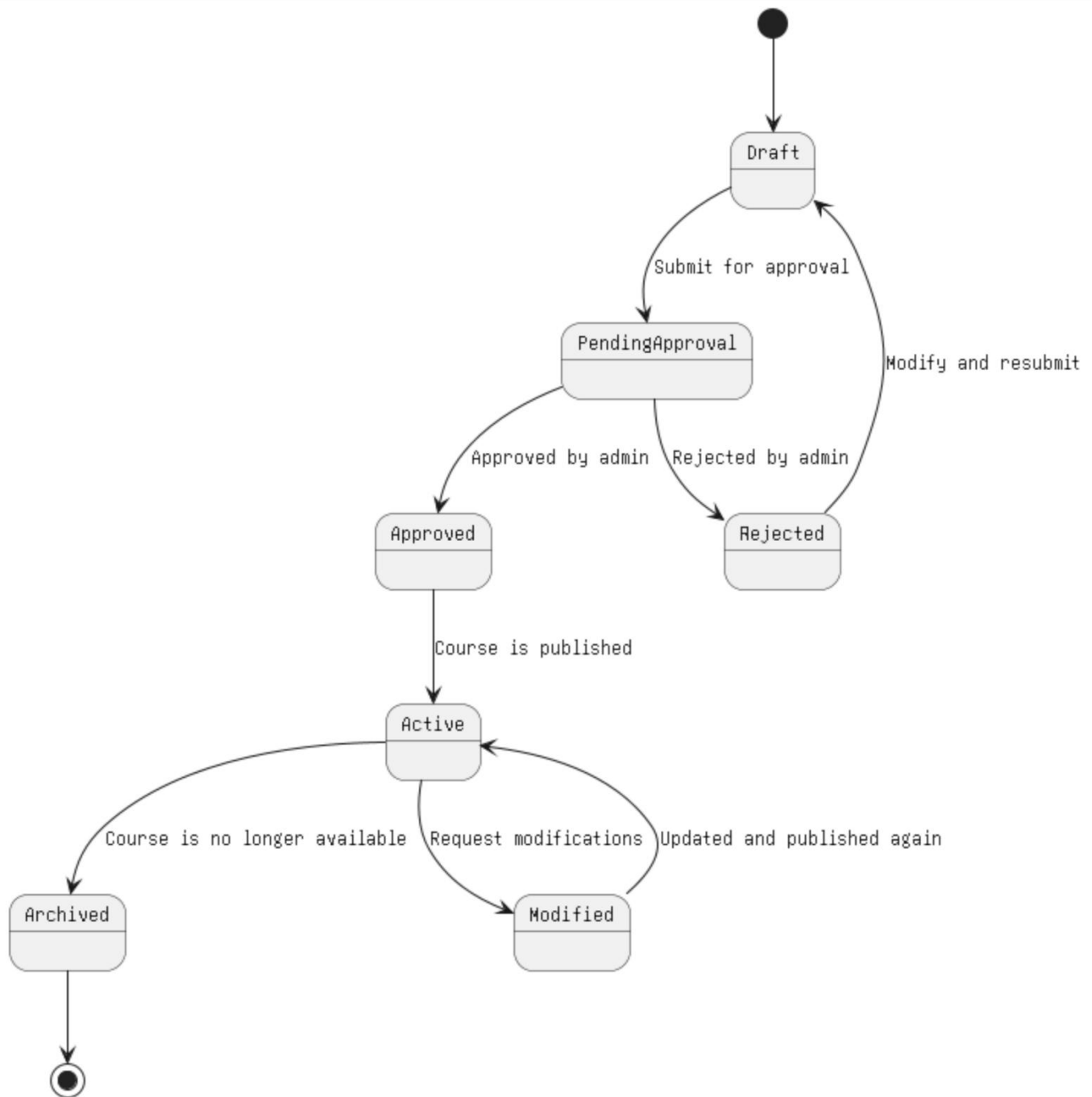
```

@startuml
[*] --> Draft
Draft --> PendingApproval : Submit for approval
PendingApproval --> Approved : Approved by admin
PendingApproval --> Rejected : Rejected by admin
Approved --> Active : Course is published
Active --> Archived : Course is no longer available
Active --> Modified : Request modifications
Modified --> Active : Updated and published again
Archived --> [*]
Rejected --> Draft : Modify and resubmit
@enduml

```

Diagram:





## 6) Collaboration Diagram

PlantUML code:

```
@startuml
```

```
!define RECTANGLE class
```

```
RECTANGLE Administrator
```

```
RECTANGLE "Course Management System" as CMS
```

```
RECTANGLE "Database"
```

```
RECTANGLE Tutor
```

```
RECTANGLE Student
```

```
Administrator -[hidden]> CMS
```

```
Administrator -[hidden]> Database
```

Administrator -[hidden]> Tutor  
Administrator -[hidden]> Student

Administrator --> CMS : Create Course  
CMS --> Database : Save Course Data  
CMS --> Tutor : Assign Tutor  
CMS --> Database : Update Tutor Info

Administrator --> CMS : Manage Course  
CMS --> Database : Update Course Data

Student --> CMS : View Course  
CMS --> Database : Retrieve Course Data  
CMS --> Student : Display Course Info

Tutor --> CMS : View Assigned Courses  
CMS --> Database : Fetch Tutor's Courses  
CMS --> Tutor : Display Course List  
@enduml

*Diagram:*

