Database Management

CSE303

Student Performance monitoring system

Group-4

Group Members

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Background of the organization:

- Independent University, Bangladesh (IUB) is one of the leading and oldest private university in Bangladesh where academic excellence is a tradition, teaching a passion and lifelong learning a habit. It was established in 1993. It has an explicit focus on Research and Global partnerships. The IUB campus sprawling over 3 acres, has an amphitheater, the state-of-the-art laboratories, well-equipped library with online access to journals and books, above 70 classrooms, lecture galleries, auditorium, gymnasium, food court, playground, medical Center, counseling Center and an alumni office.
- IUB has world-class undergraduate and graduate program accredited by professional national 7 international accreditation bodies, such as University Grants Commission of Bangladesh (UGC), Accreditation Council for Business Schools and Programs (ACBSP), USA, and Institution of Engineers, Bangladesh (IEB). IUB prepares graduates for a successful career and this is central to the design of courses and the support we provide. The programs and the courses are designed in such a way that prepare the students for a successful career. The faculty members of IUB are actively engaged in research and publish regularly in peer-reviewed journals. Along with conventional classroom based teaching, students are engaged in research relatively early in their studies. IUB has academic research collaborations with various universities including Harvard University, Stanford University, University of Colorado at Boulder, Brown University, McMaster University, University of Heidelberg. IUB also participate in various national level inter-university sports, robotics, debates and similar competitions.

Background of the project:

- The Student Performance Monitoring System focuses on performance monitoring of student's continuous assessment (tests) and examination scores in order to predict their final achievement status upon graduation.
- The main theme of this project is to find the systemic problems and limitation we have in our current system in few areas and how can we improve it. The aim of our project is to design, build and deliver a developed software that we believe will help universities everywhere to promote a more productive and effective way of evaluating students. Also there need to be some functional changes in the system and department. We also analyze individual processes that take place under the current system of monitoring student performance and the concerns and problems with those process from start to finish.

Objective of the project:

- We want to develop the existing software iras in such way that can be more user friendly and helpful .it will help the institution to improve the quality of education. where the students and the faculty can use the system and find information more easily .in a short passage of time they can find all the information related to student enrollment, student grades, students CGPA and also CO and PLO.
- It will also benefit all the departments of the institution. this development will boost the work rate of everyone. it will be more productive and effective. not only the iras but also in different aspect few things need to be changed where we worked on. Monitoring semester wise student performance report by an Instructor and also analyze how to Department head submit grades of the students instead of faculty.

Scope of the project:

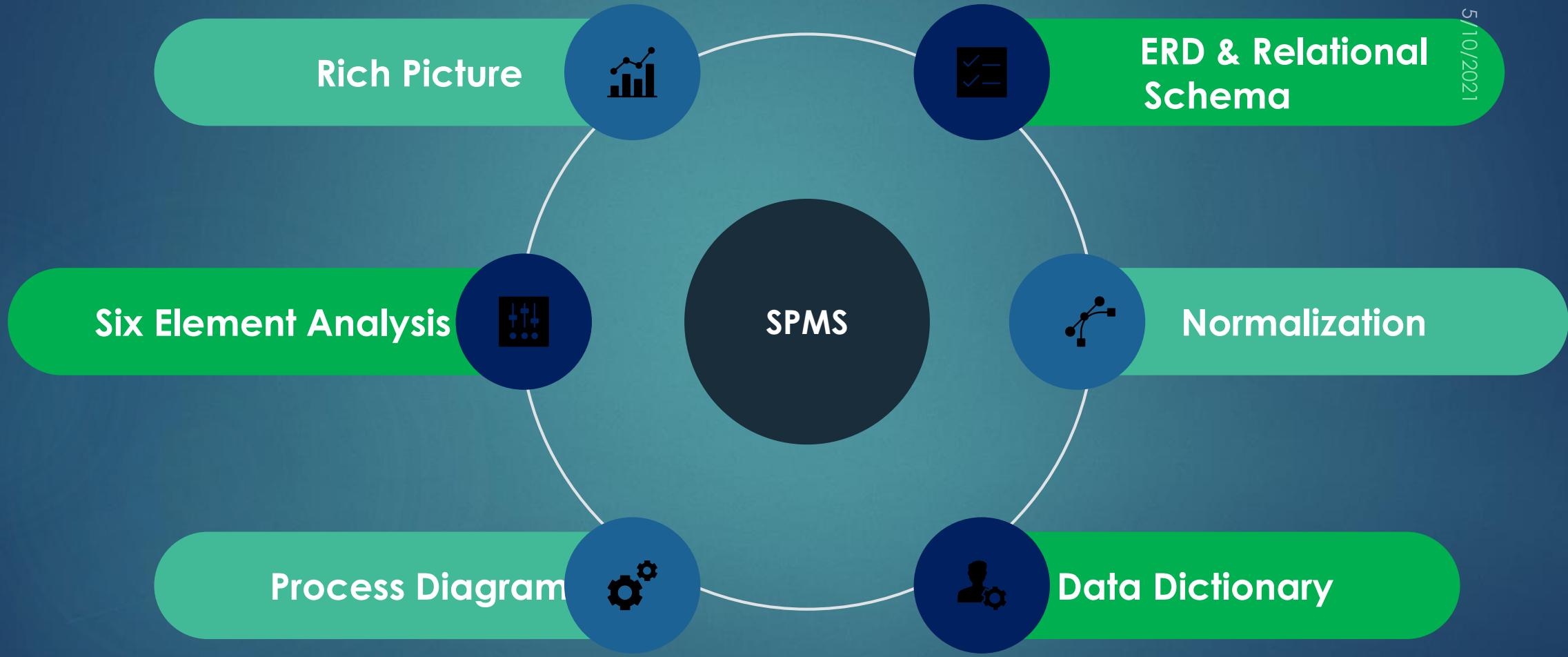
- Project scope is a prerequisite to guarantee the success of a project. We have to make sure that the new system can be more successful than the present one when we are modifying an existing system.
- We build an interface for faculties to able to see grades of another courses of a Student. Department can also access the systems for uploading grades instead of Instructor. If for some reason the instructor cannot upload the grade, then the Department can do it. On the other hand, Department head will be able to view different activities according to the different courses and sections of the instructor like Instructor's Attendance,
- Course wise Student performance etc.
- Data will also, be protected and each user will be shown only that data which is relevant to them.

Introduction

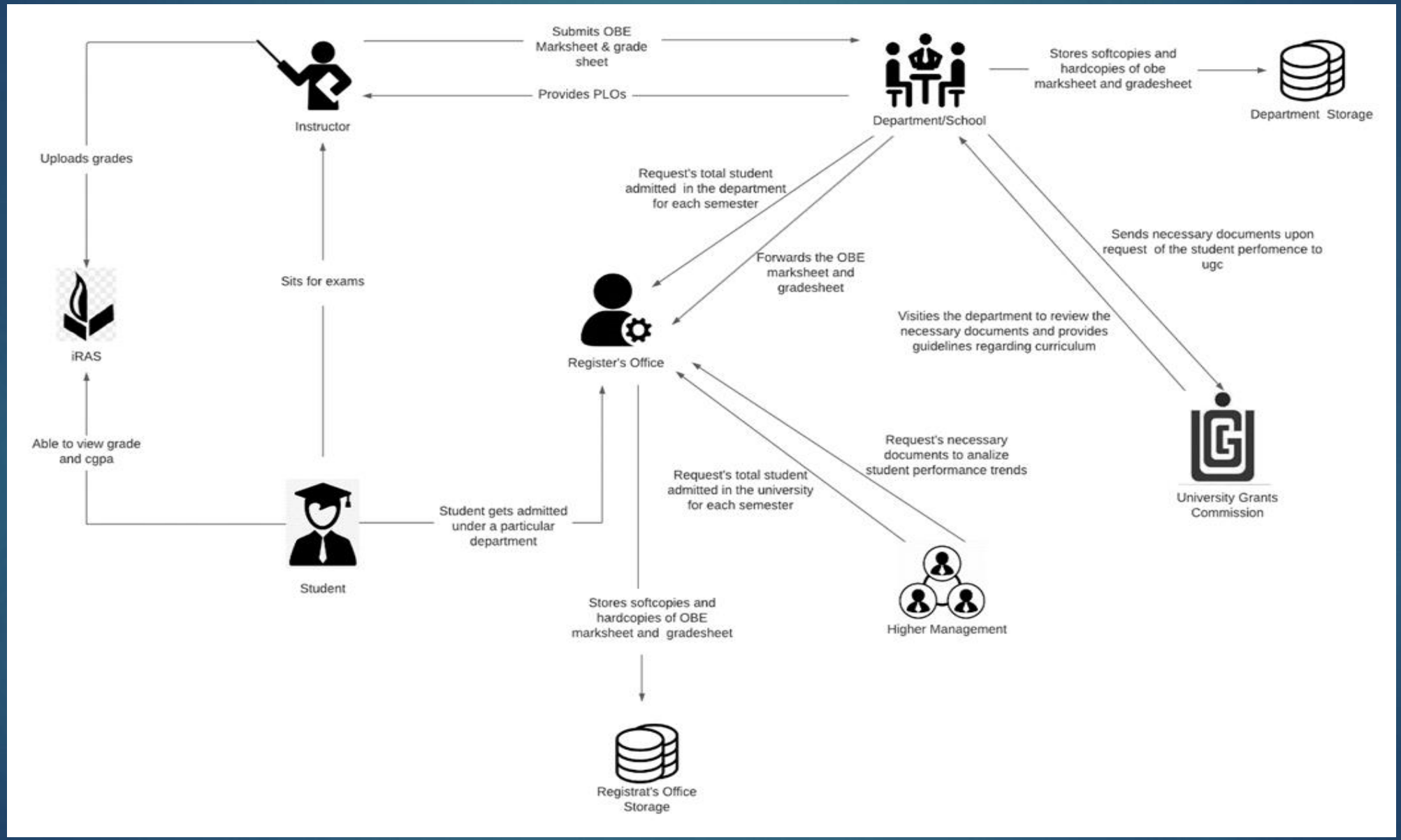
The Student Performance Monitoring System (SPMS) focuses on performance monitoring of student's continuous assessment and examination scores in order to predict their final achievement status upon graduation.

The main goal of this project is to find the systemic problems and limitation we have in our current system in few areas and how can we improve it. The aim of our project is to design, build and deliver a developed software that we believe will help universities everywhere to promote a more productive and effective way of evaluating students. The faculties can input the COs for each of their students so that the system can map the COs to PLO accordingly. We also analyze individual processes that take place under the current system of monitoring student performance and the concerns and problems with those process from start to finish.

Database Management



RICH PICTURE(AS-IS)



SIX ELEMENT(AS-IS)

- Student sits for exam
- Student are able to view grades, CGPA and download transcript
- Instructors uploads grades to IRAS
- Instructors produce OBE mark sheet and grades sheet and submits it to the department
- Map Course Outcomes (COs) to Program Learning Outcomes(PLOs)
- Student gets admitted under a particular department
- Request for review and change of grades
- View Records OBE Mark sheets and Course Assessment Reports

PROCESS DIAGRAM(AS-IS)

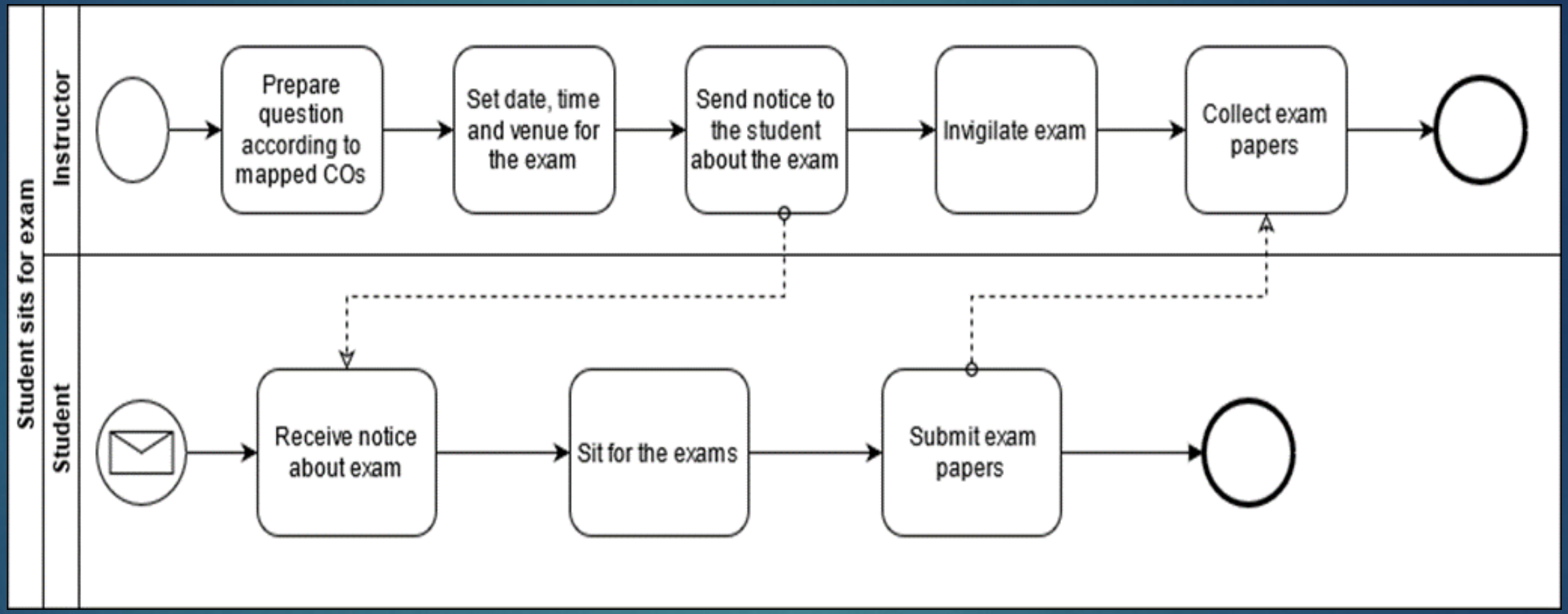


FIGURE 2.1 Process Diagram for Student Sits for exam

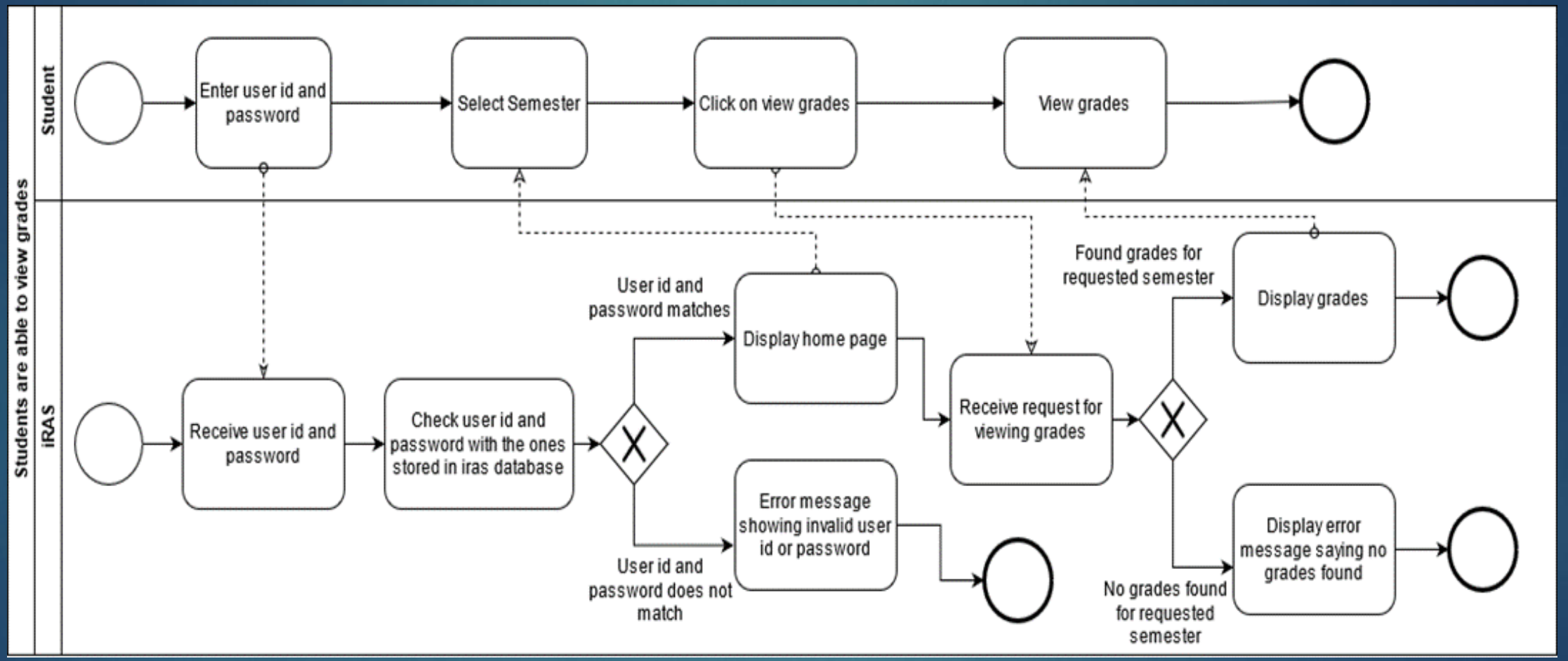


FIGURE 2.2 Process Diagram for Student are able to view grades and CGPA

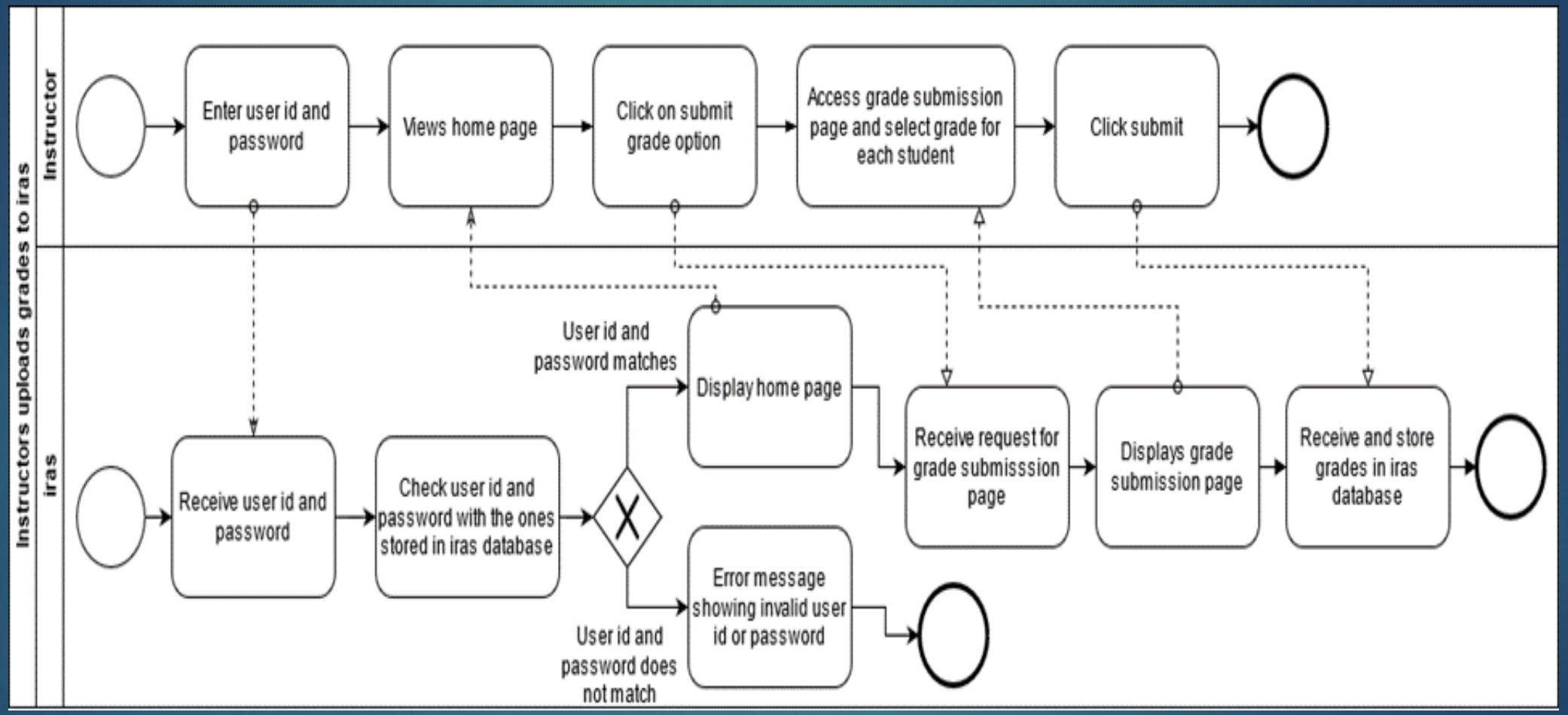


FIGURE 2.3 Process Diagram for Instructor uploading grade to iras

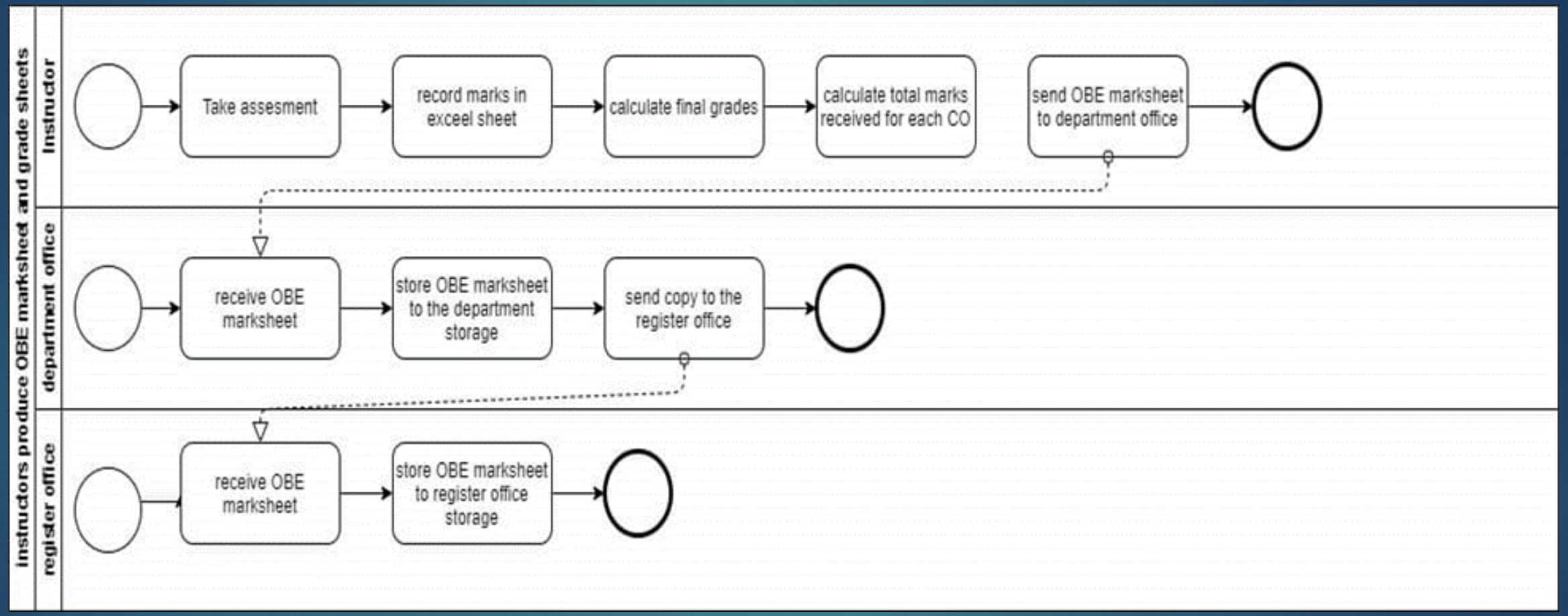


FIGURE 2.4 Process Diagram for Instructor produces OBE mark sheet

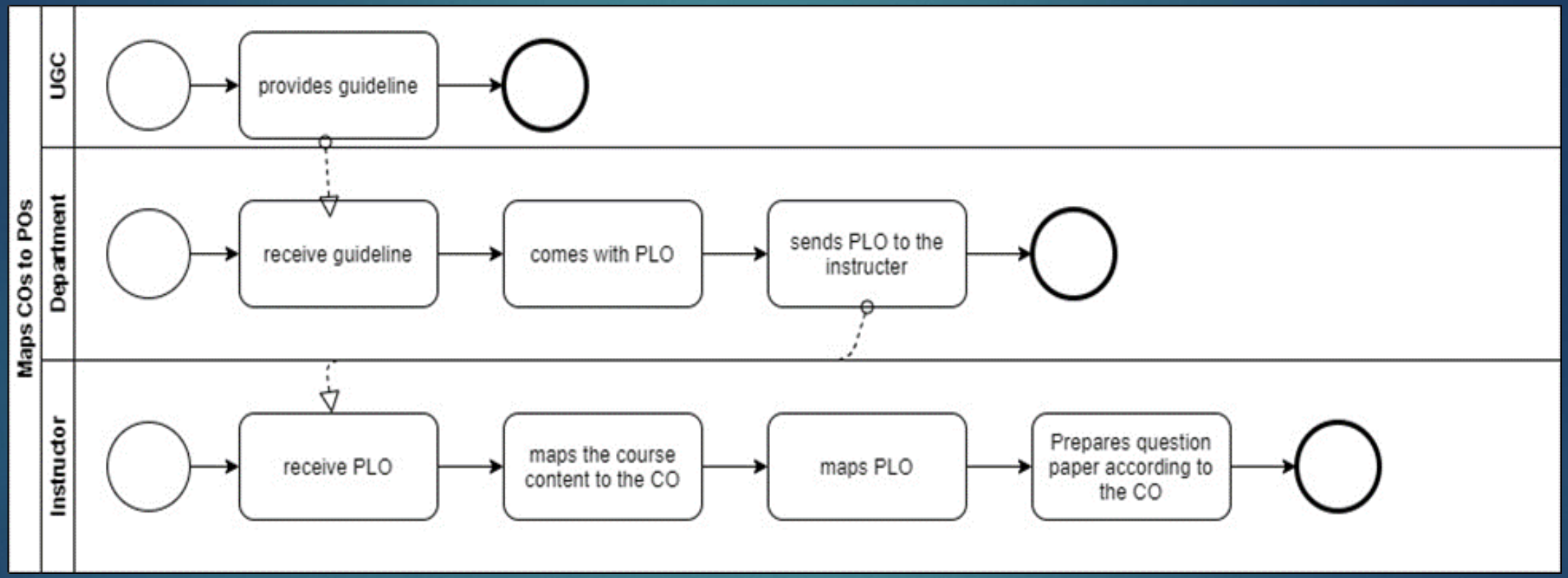


FIGURE 2.5 Process Diagram for Map COs and POs

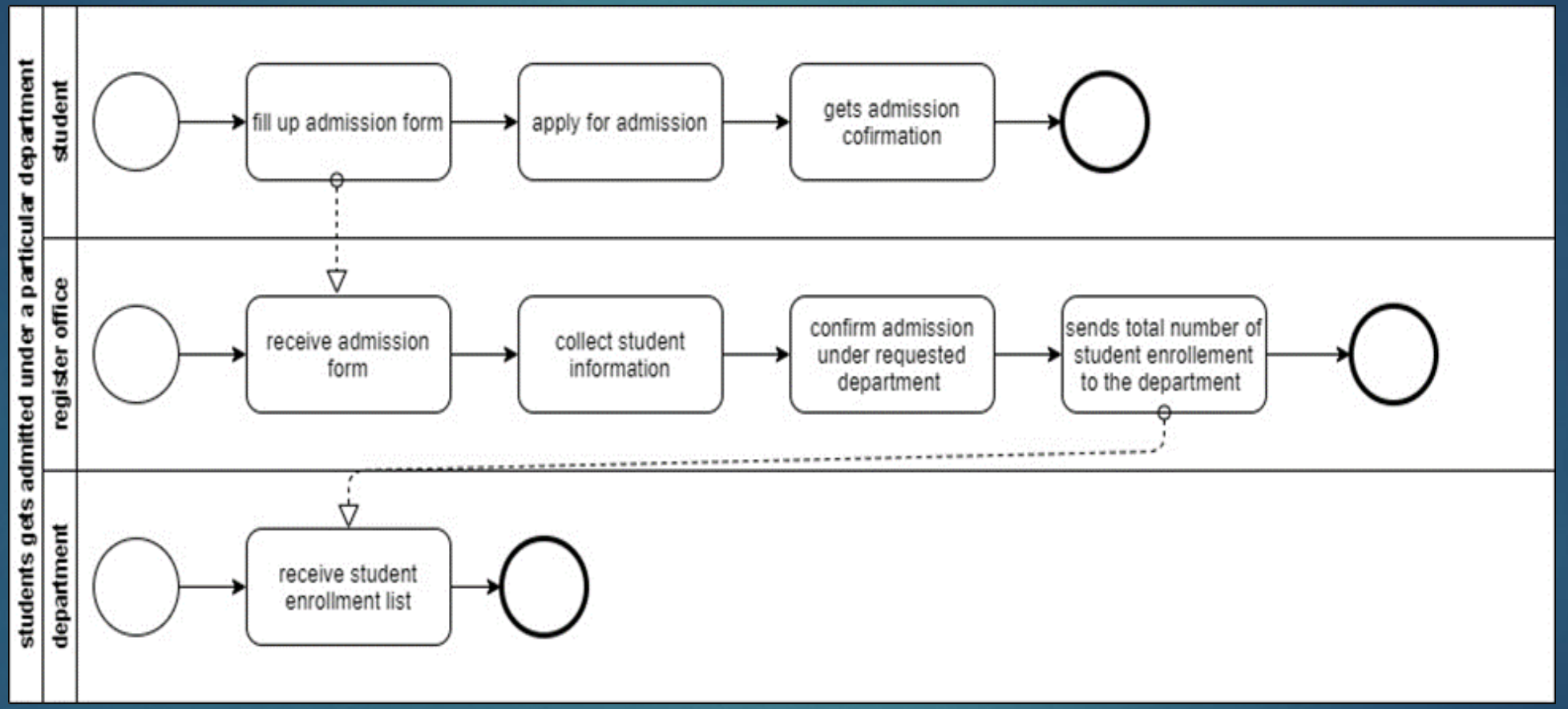


FIGURE 2.6 Process Diagram for Student gets admitted under particular department

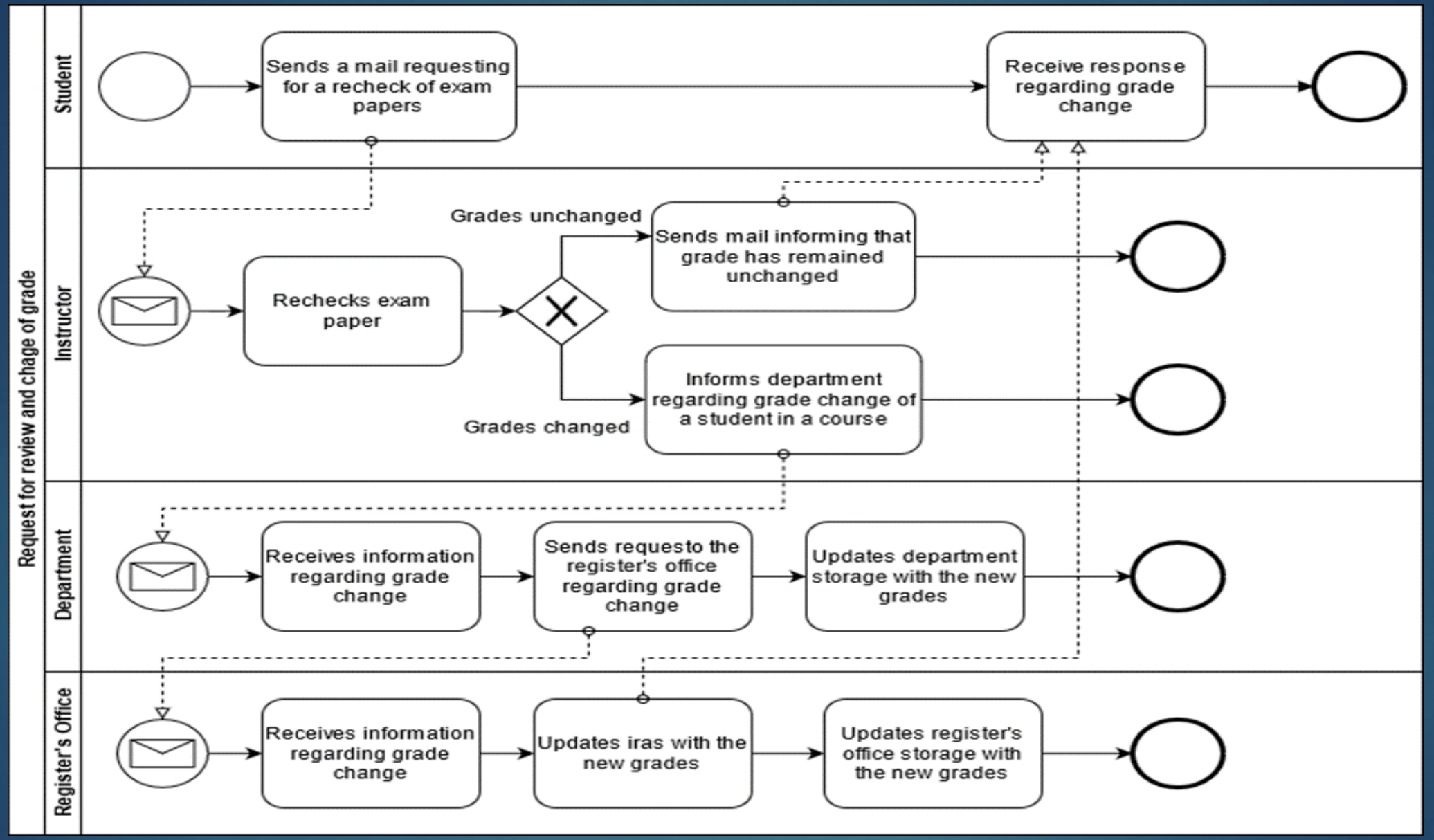


FIGURE 2.7 Process Diagram for request for review and change of grades

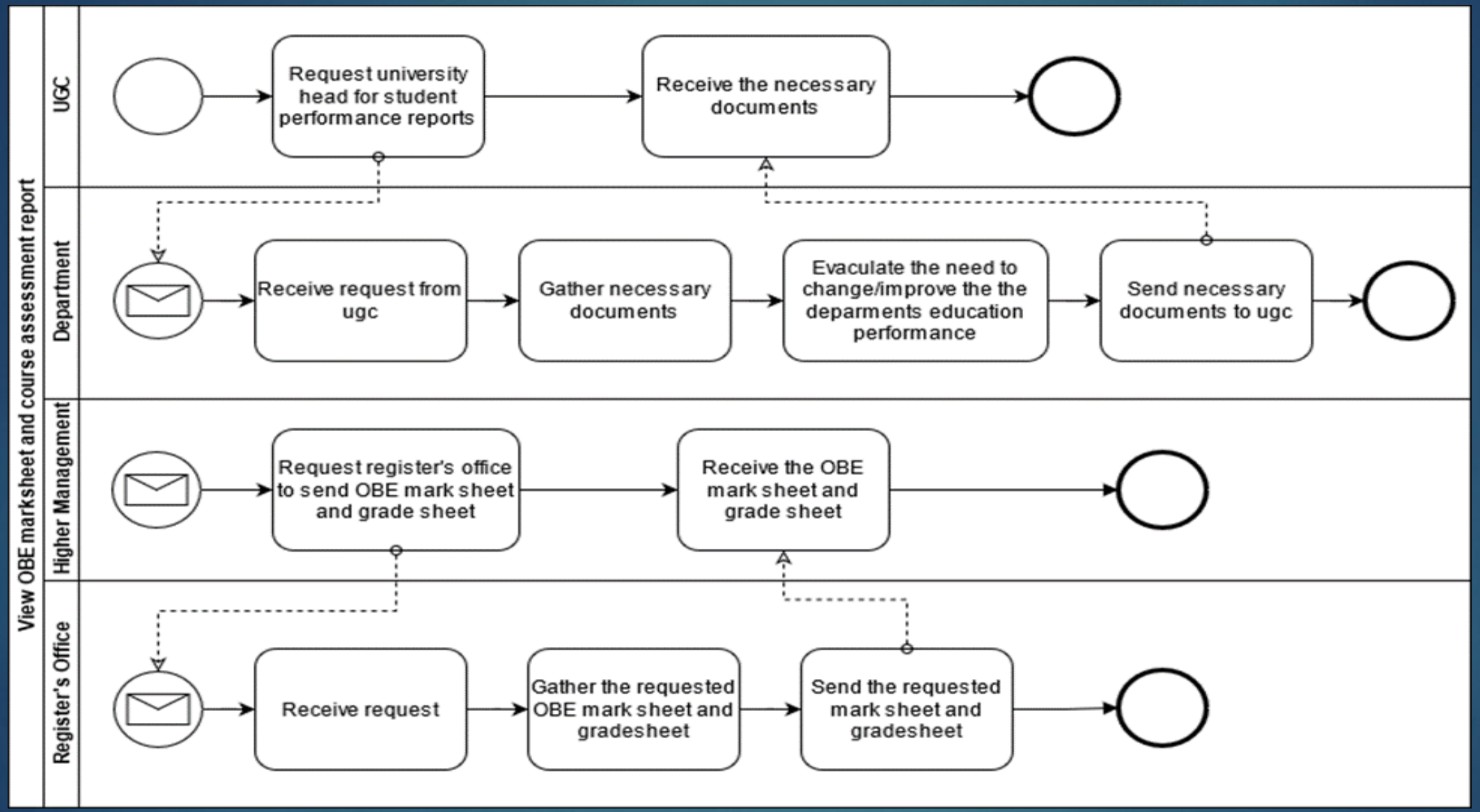
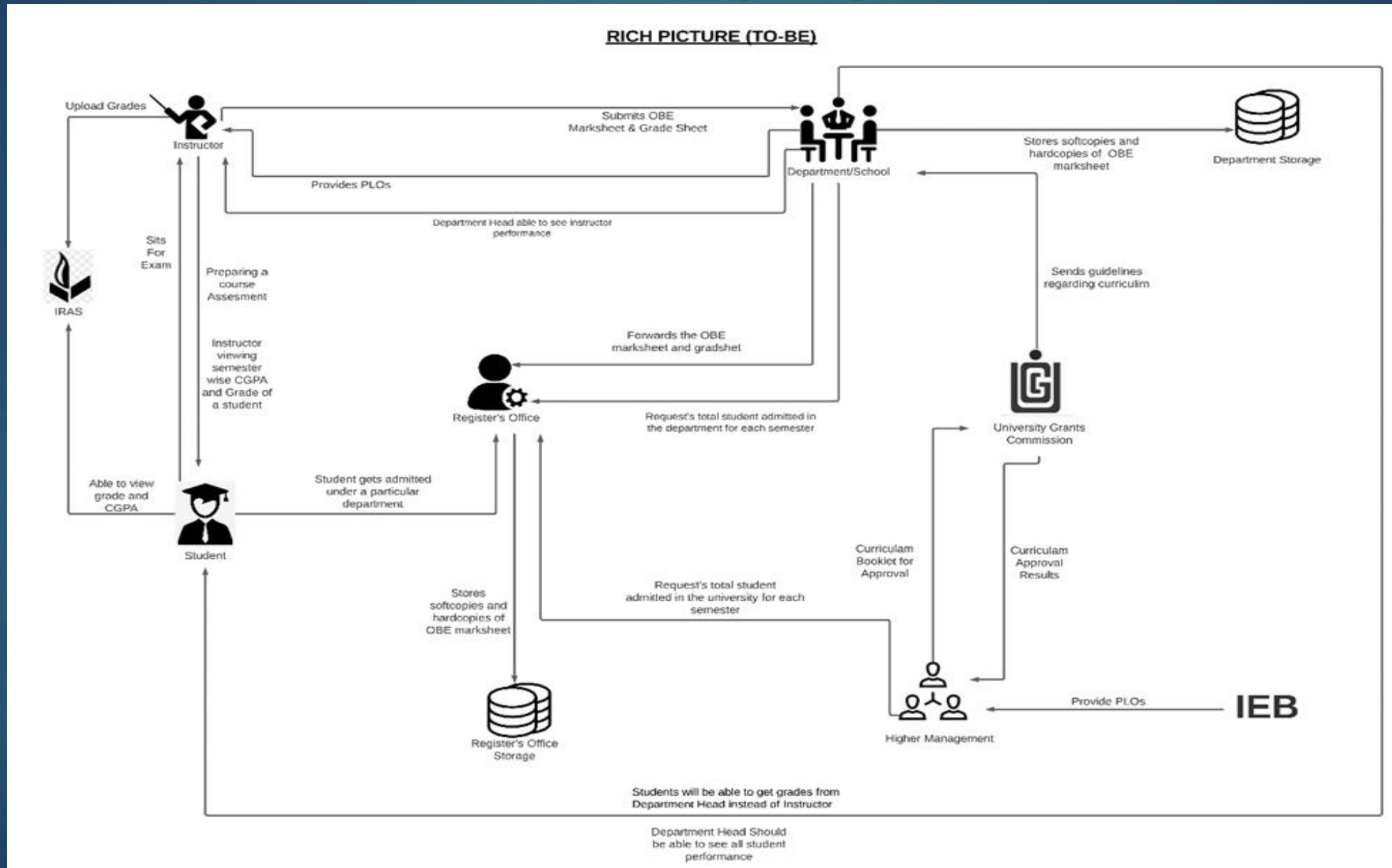


FIGURE 2.8 Process Diagram for view obe mark sheet and course assessment report

Problem Analysis

- Preparing a Course Assessment
- Higher Management Viewing Individual Instructor Performance
- Instructor viewing the CGPA and change the grade
- Higher management and Instructor viewing OBE mark sheet and grade sheet
- Students will be able to get grades from Department instead of Instructor
- Higher Management & Instructor Uploading & Viewing PLOs/CO
- Student viewing PLO & CO
- UGC approves curriculum based on PLO and CO

RICH PICTURE (TO-BE)



SIX ELEMENT (TO-BE)

- Preparing Course Assessment of Instructor
- Instructor Able to see the result of another courses of a Student
- Students will be able to get grades from Department instead
- UGC approves curriculum based on PLO and CO
- Department Head able to see all instructor Performance
- Higher Management and Instructor viewing OBE mark sheets and grade sheet
- Instructor viewing CGPA and change the grade
- Student viewing PLO & CO

PROCESS DIAGRAM (TO-BE)

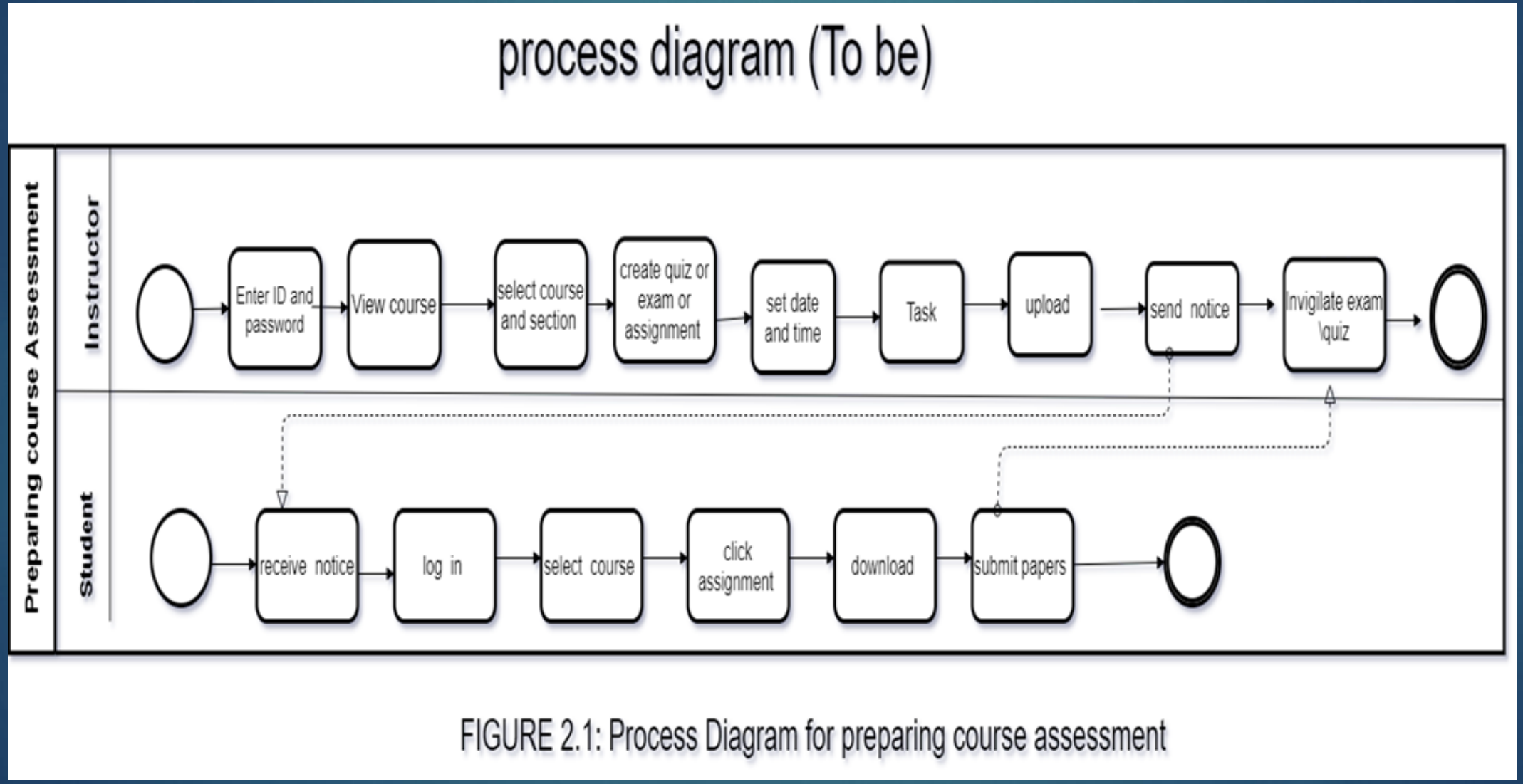


FIGURE 2.1: Process Diagram for preparing course assessment

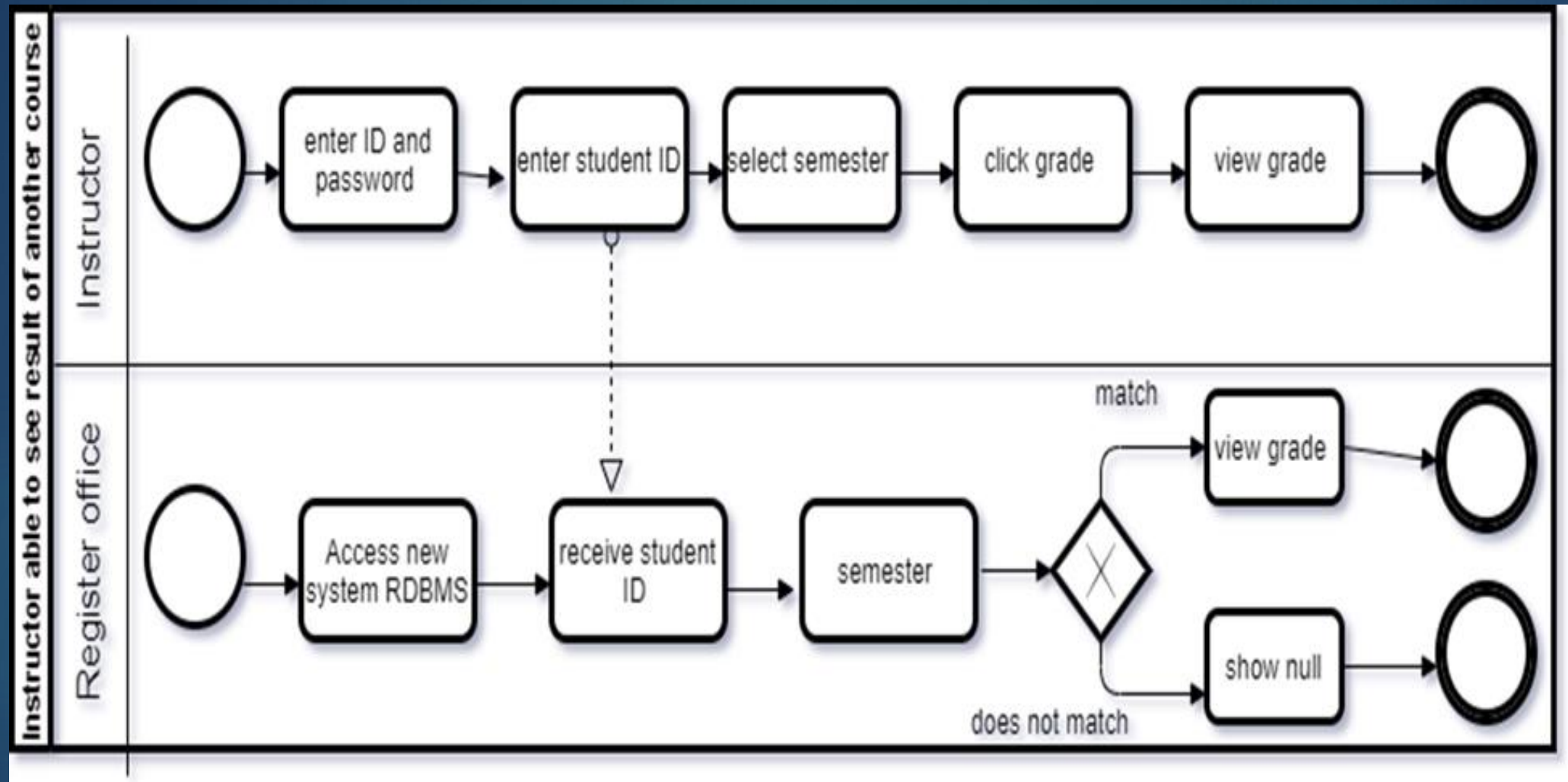


FIGURE 2.2: Process diagram for instructor able to see any course result

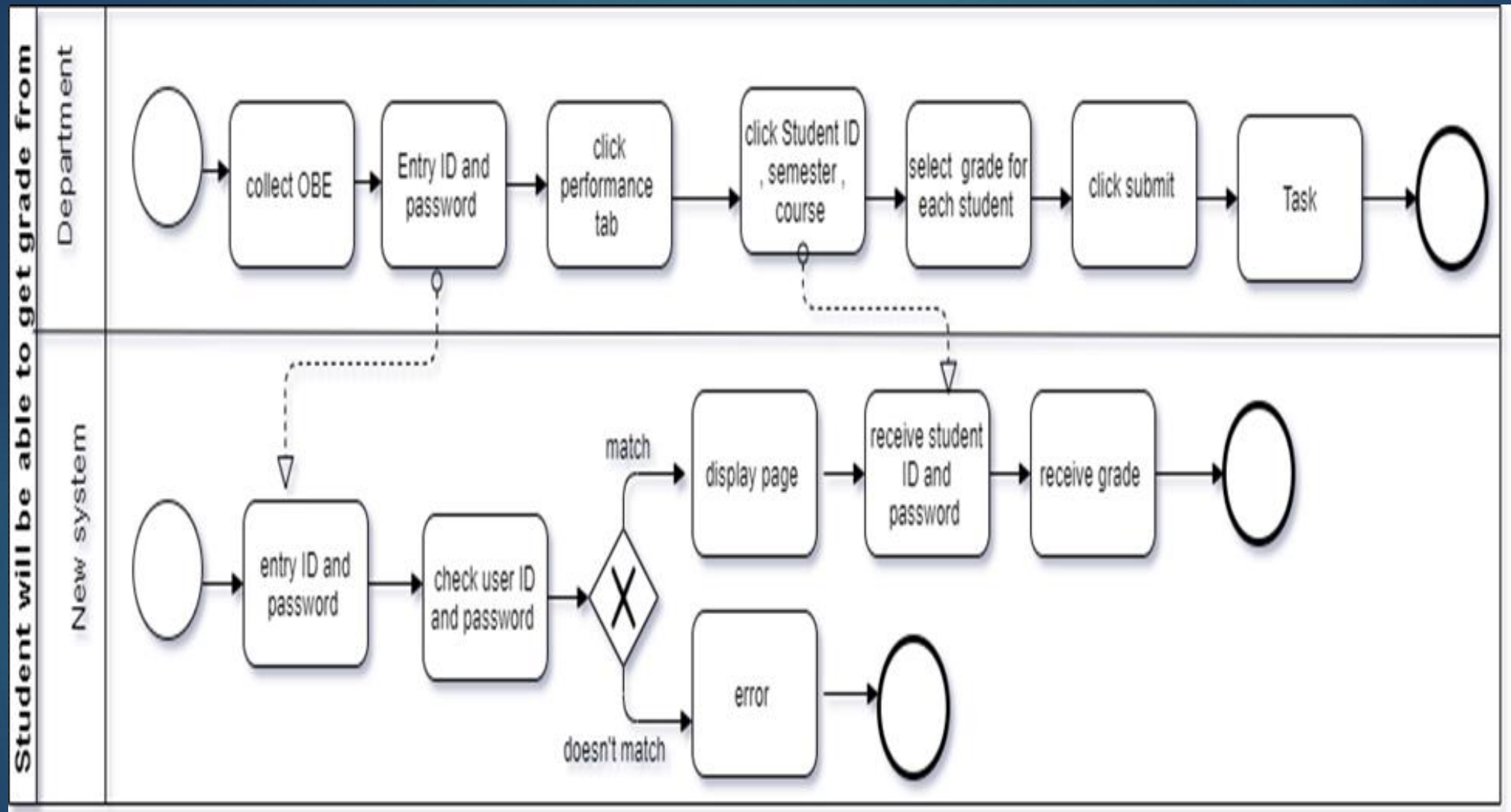


FIGURE 2.3: Student will be able to get grade form

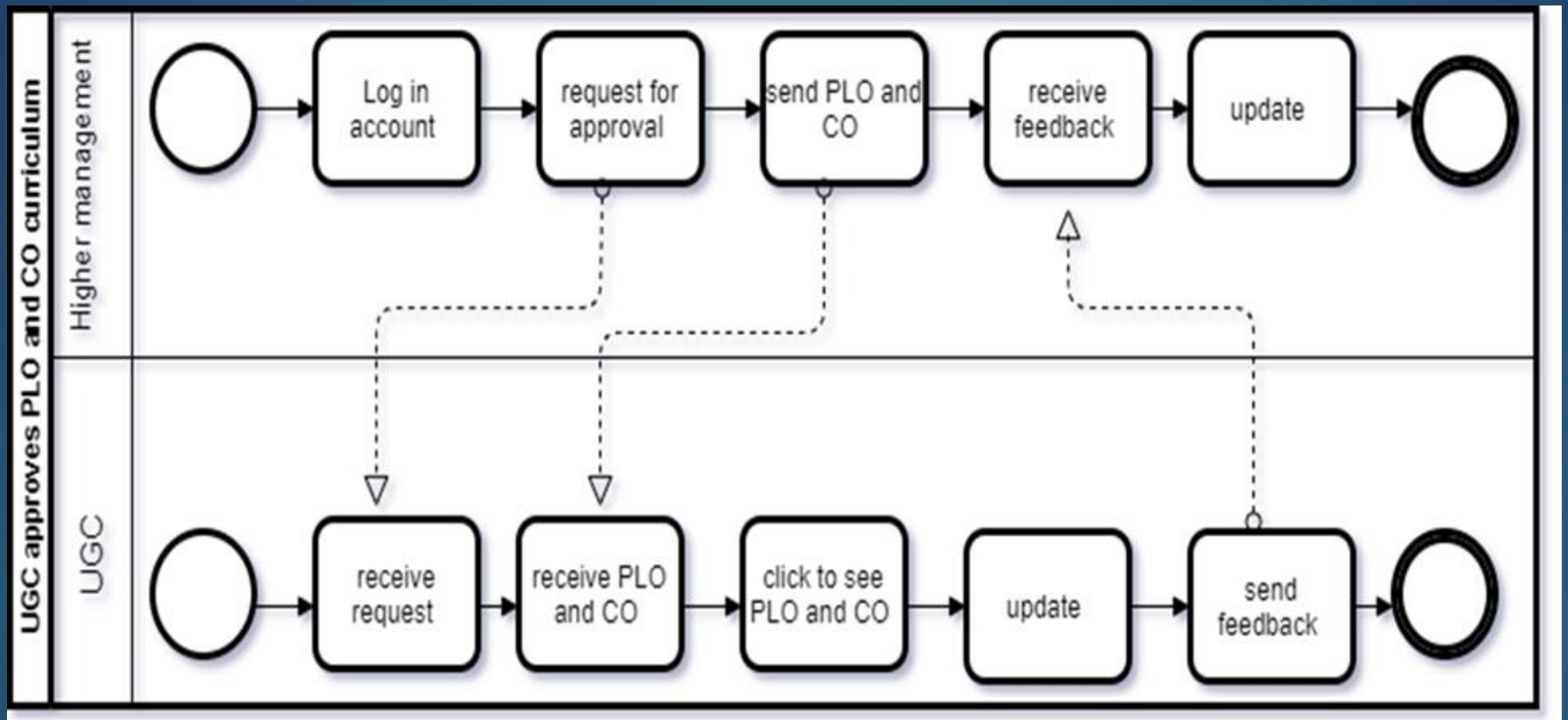


FIGURE 2.4: UGC approves PLO and CO Curriculum

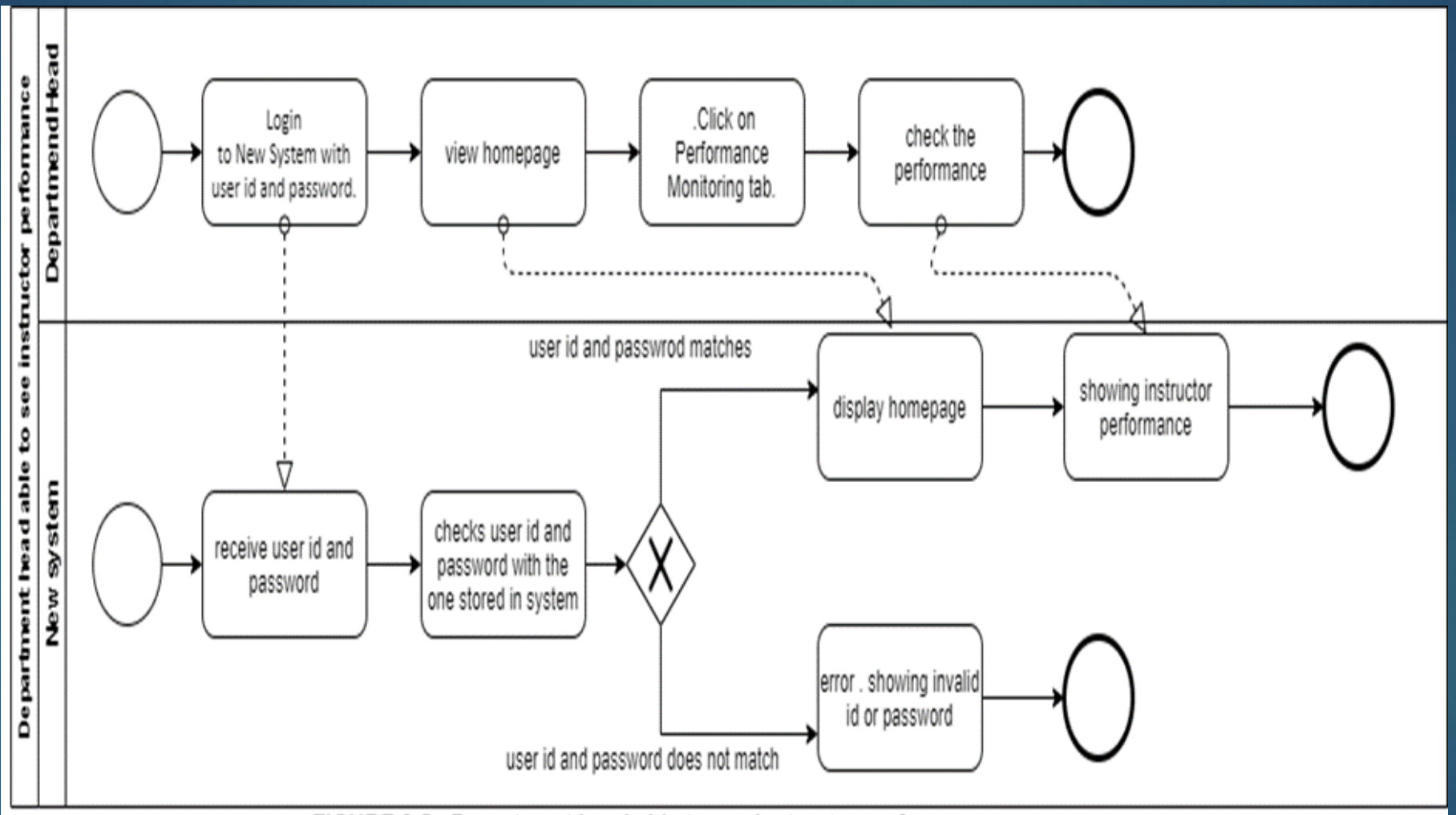


FIGURE 2.5 : Department head able to see instructor performance

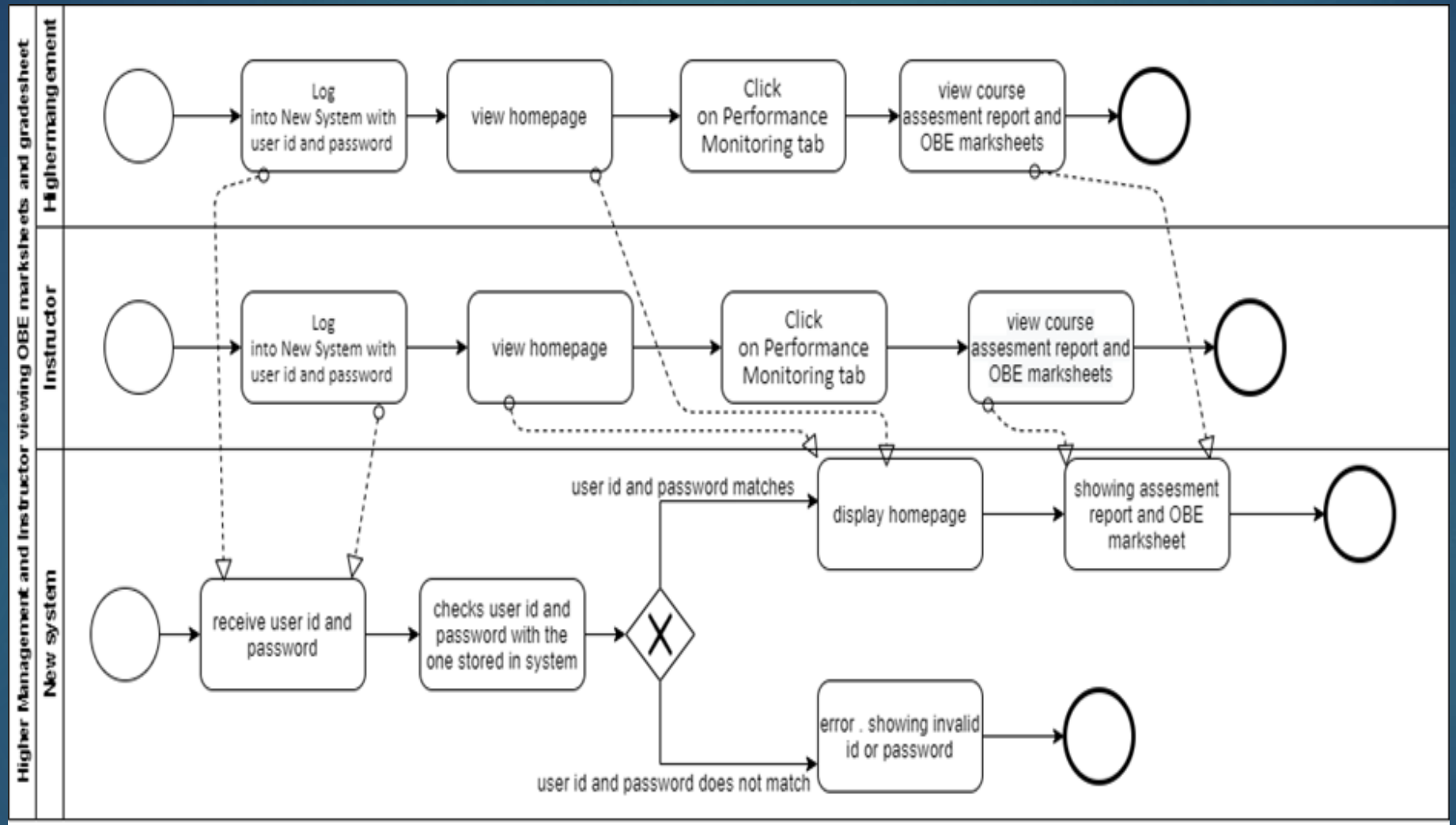


FIGURE 2.6 : Higher Management and Instructor viewing OBE marksheets and grade sheet

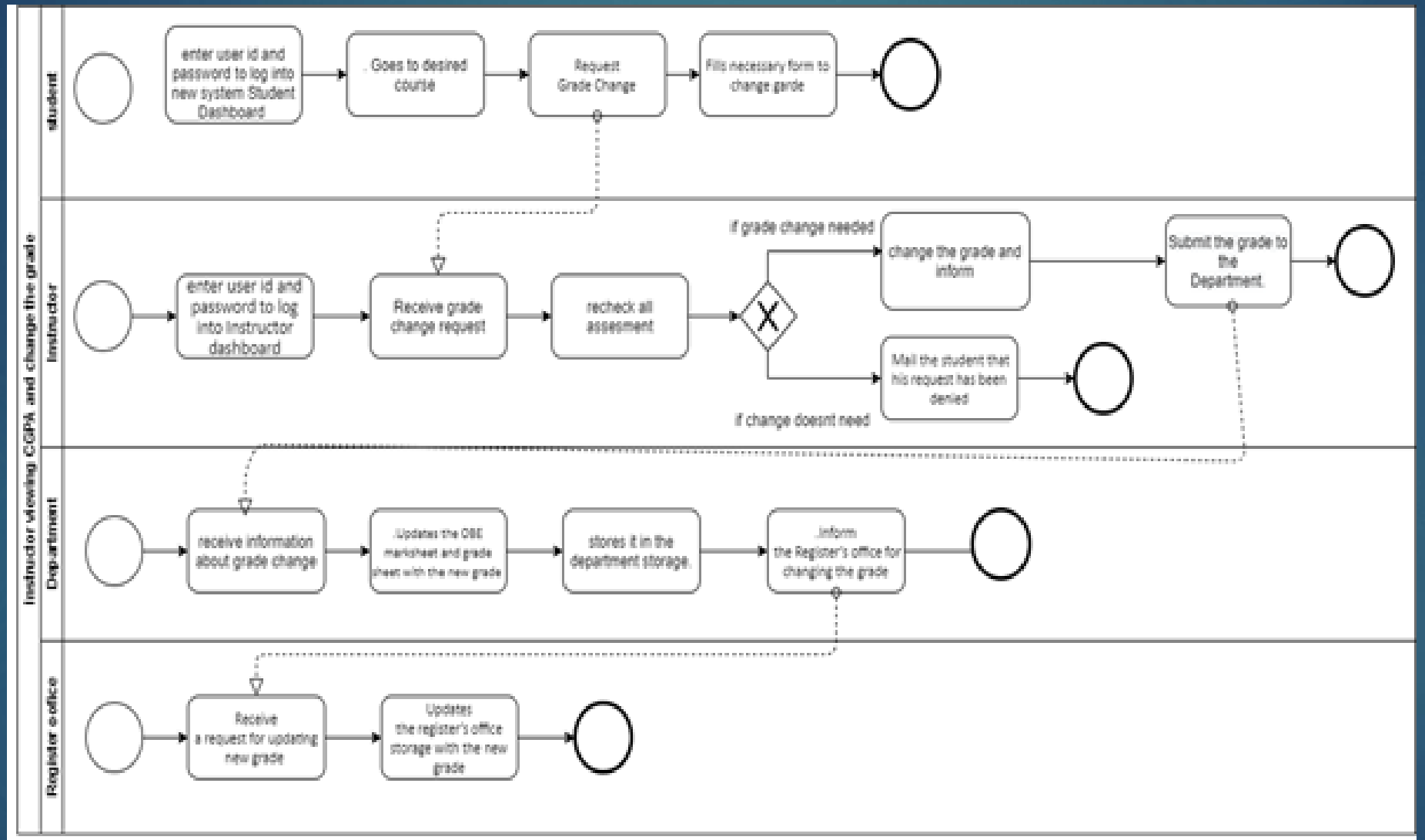


FIGURE 2.7 : Instructor viewing CGPA and change the grade

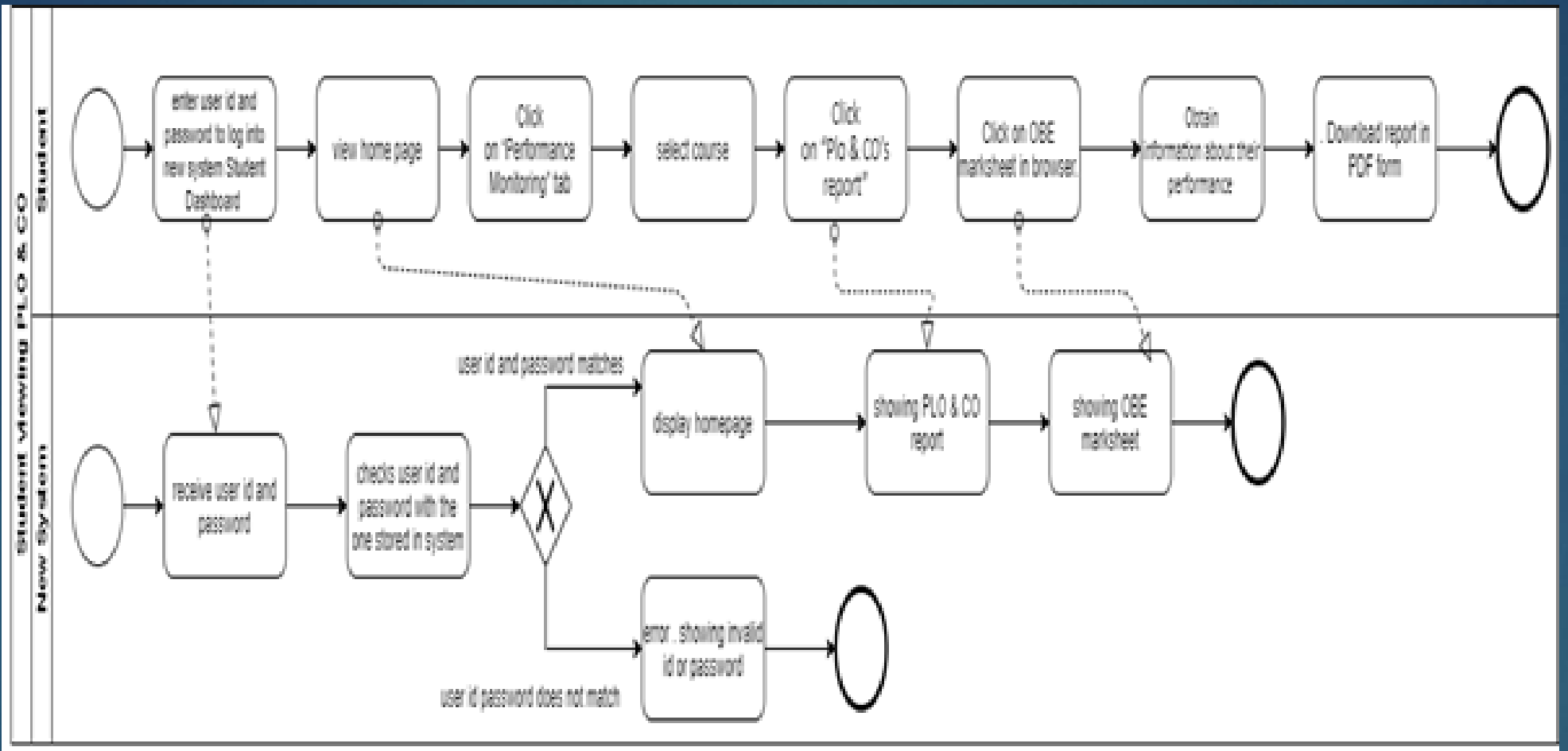


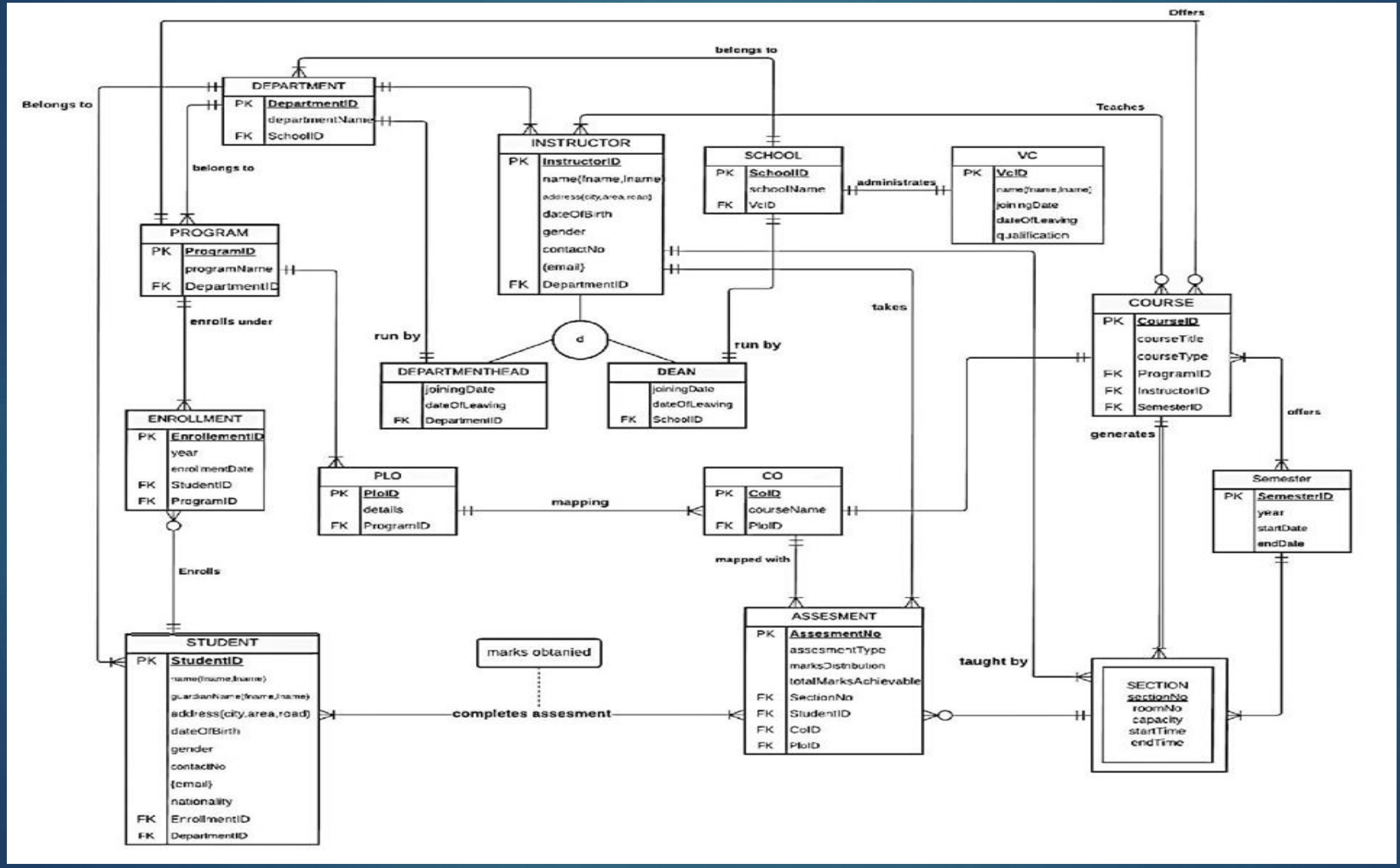
FIGURE 2.8 : Student viewing PLO and CO

FIGURE 2.8 Student viewing PLO &CO

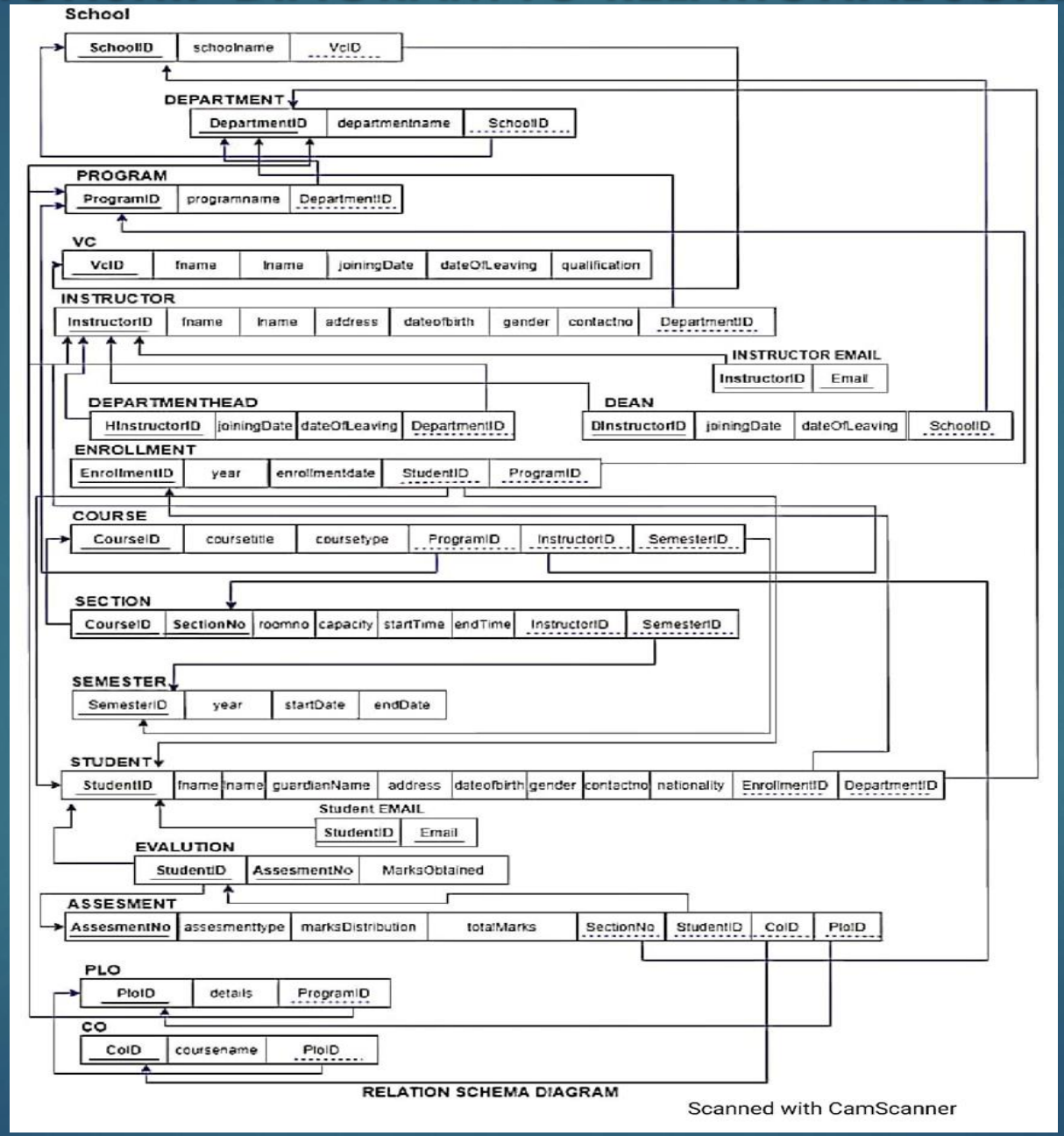
BUSINESS RULE

- 1) A student may register under one or more programs. A program many have multiple students.
- 2) A department may have multiple programs. A program must be exactly under one department.
- 3) A school may have multiple departments. A department must be exactly under one school.
- 4) A department may have multiple instructors. An instructor must be exactly under one department.
- 5) A department must have exactly one head.
- 6) A school must have exactly one dean.
- 7) A program may have multiple PLOs. A PLO many be under multiple programs.
- 8) An instructor may teach multiple courses. A course must have exactly one instructor.
- 9) A course may have multiple sections. A section must be under exactly one course.
- 10) A student may tale multiple assessments. A particular assessment must be taken exactly by one student.
- 11) A section may have multiple assessments. An assessment must have one exact section.

ENTITY RELATIONSHIP DIAGRAM



ENTITY RELATIONSHIP DIAGRAM TO RELATIONAL SCHEMA



NORMALIZATION

School	**SchoolID**	s1
	School name	s2
	VCID	v1
VC	vcID	v1
	Fname	v2
	lname	v3
	Joining datew	v4
	Leaving date	v5
	Qualification	v6
Department	departmentID	d1
	Departmentname	d2
	schoolID	S1
program	programID	p1
	Program name	p2
	departmentID	d1
Instructor	InstructorID	i1
	fname	i2
	lname	i3
	City	i4
	Area	i5
	Road	i6
	Date of birth	i7
	Gender	i8
	Contact no (gmail)	i9
	DepartmentID	d1
Department Head	departrmentheadID	h1
	qualification	h2
	Joining date	h3
	Date of leaving	h4

Enrollment	**enrollemntID**	**n1**
	year	n2
	Enrollment date	n3
	studentID	t1
	ProgramID	p1
student	studentID	t1
	fname	t2
	iname	t3
	City	t4
	Road	t5
	Area	t6
	Date of birth	t7
	Gender	t8
	Contact no	t9
	Nationality	t10
	enrollmentID	n1
	departmentID	d1
Assessment	Assessment ID	a1
	Assessment type	a2
	Marks distribution	a3
	sectionNO	e1
	studentID	t1
	COID	o1
	PLOID	l1
	Student complete assessment	a4
	Student marks obtained	a5
Course	courseID	c1
	Course title	c2
	Course type	c3
	programID	p1
	InstructorID	i1
	semesterID	r1

PLO	PLOID	l1	Semester	SemesterID	r1
	Details	l2		year	r2
	programID	p1		Start date	r3
CO	COID	o1		End date	r4
	Course name	o2			
	PLOID	l1			

s1->	s 2, v1
v1->	v2,v3,v4,v5,v6
d1->	d2,s1
p1->	p2,d1
i1->	i2,i3,i4,i5,i6,i7,i8,i9,d1
i1,h1->	h2,h3,h4
i1,x1->	x2,x3,x4
n1->	n2,n3,t1,p1
t1->	t2,t3,t4,t5,t6,t7,t8,t9,t10,n1,d1
a1->	a2,a2,a3,a4,a4,e1,t1,o1,l1
c1->	c2,c3,p1,i1,r1
e1->	e2,e3,e4,c1
l1->	l2,p1
o1->	o2,l1
r1->	r2,r3,r4

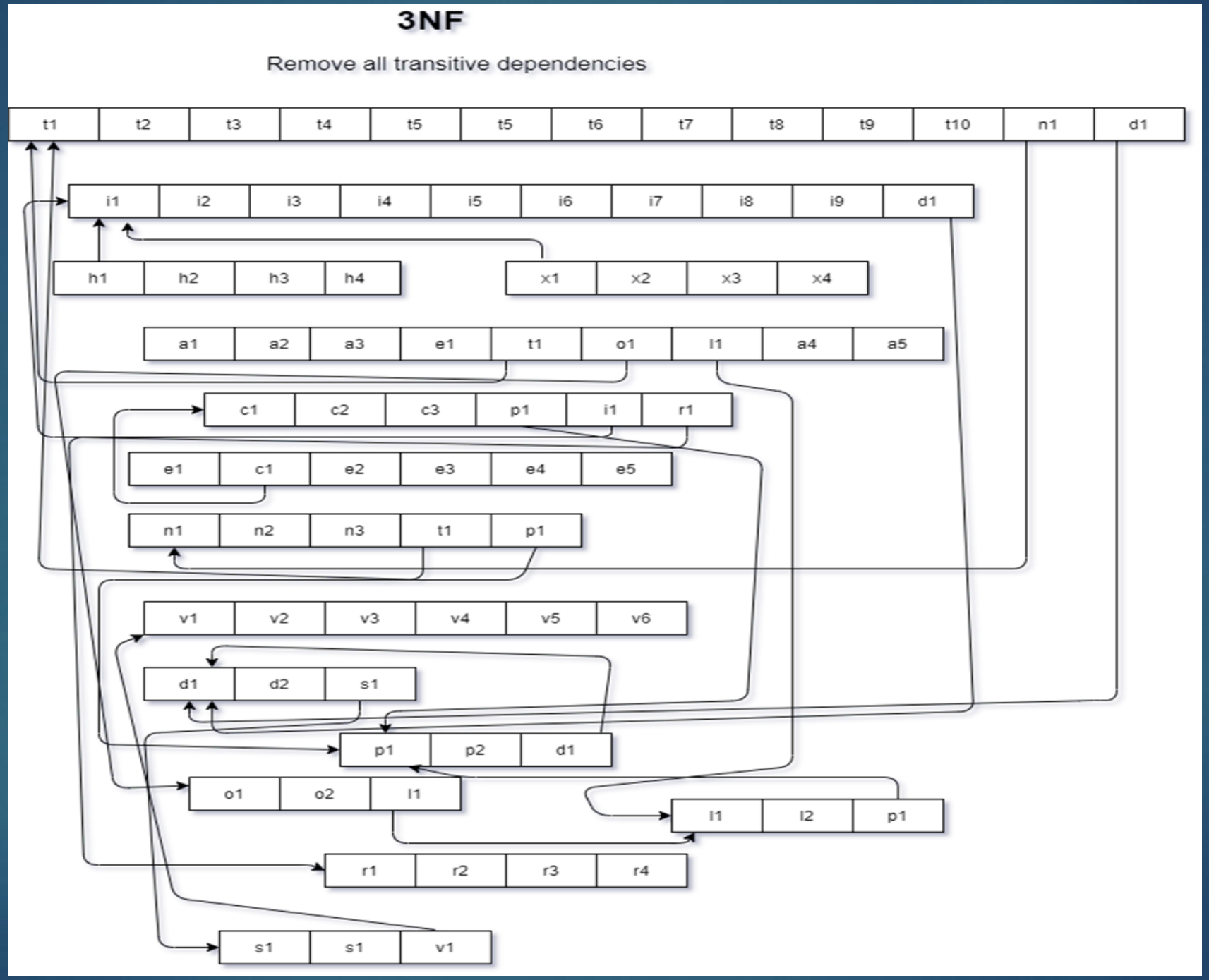
departmentID ->	Department name, schoolID
ProgramID->	Program name , departmentID
Instructor ID->	Fname, iname, city, area, road, date of birth, gender , contact no (gmail), departmentID
Instructor Deartment HeadID->	Qualification , joining date , date of leaving
Instructor DeanID->	Annual salary, joining date ,date of leaving
enrollmentID->	Year, enrollment date, studentID, programID
studentID->	Fname,iname,city,road,area,date of birth,gender , contact no(gmail),nationality , enrollmentID, departmentID
Assessment >	Assessment type, marks distribution, sectionNO,, studentID, COID ,PLOID, student complete assessment , student marks distribution
courseID->	Course title, course type, programID, intructorID, semesterID
sectionNO->	courseID, room no, capacity , start time
PLOID->	Details, programID
CO->	Course name , PLOID
SemesterID->	Year, start time, end date

1NF

Arrange all the relationship. There are multiple attribute and there are no repeating groups.

2NF

Remove all the partial dependence. There are no composite keys present this step is not required.


3NF
Remove all transitive dependencies
t1 t2 t3 t4 t5 t5 t6 t7 t8 t9 t10 n1 d1
i1 i2 i3 i4 i5 i6 i7 i8 i9 d1
h1 h2 h3 h4
x1 x2 x3 x4
a1 a2 a3 e1 t1 o1 l1 a4 a5
c1 c2 c3 p1 i1 r1
e1 c1 e2 e3 e4 e5
n1 n2 n3 t1 p1
v1 v2 v3 v4 v5 v6
d1 d2 s1
p1 p2 d1
o1 o2 l1
l1 l2 p1
r1 r2 r3 r4
s1 s1 v1

BCNF

No non-key attribute can identify can primary key or part key. So all relationship is in BCNF

DATA DICTIONARY

Name	DataType	Size	Remark
nvcid	Number	7	This is the Primary Key for VC. Example: "19*****"
cname	Text		This is the name of vc Example: "md khan"
djoiningDate	DateTime		This contains the date when vc took charge of his role **Example : "01.01.2016"**
dleavingDate	DateTime		This contains the date when vc discharged from his role **Example : "01.01.2020"**
cqualification	Text		This contains the qualification of vc Example " PHD , BSC"

Data Dictionary

- Vc_T

Name	DataType	Size	Remark
nvcid	Number	7	This is the Primary Key for VC. Example: "19*****"
cname	Text		This is the name of vc Example: "md khan"
djoiningDate	DateTime		This contains the date when vc took charge of his role
dleavingDate	DateTime		This contains the date when vc discharged from his role
cqualification	Text		This contains the qualification of vc Example " PHD , BSC"

Department_T

Name	DataType	Size	Remark
cschoolid	Text	5	This is the Primary Key of School Example: "SETS"
Cschoolname	Text		This is the name of the School. Example: "School of Engineering, Technology and Science"
nvcid	Number		This is the foreign key from the VC table . Example : "19*****. "

School_T

Name	DataType	Size	Remark
cdepartmentid	Text		This is the Primary Key of the Department. Example: "EEE"
cdepartmentname	Text		This is the name of the Department. Example: "Computer Science and Engineering"
cschoolid	Text		This is the Foreign Key of the table School. Example: "SETS"

Student_T

Name	DataType	Size	Remark
nstudentid	Number		This is the Primary Key for the Student. Example: "1800001"
cname	Text		This is the name of the Student. Example: "Muhammad Akib"
cguardianname	Text		This is the name of the guardian. Example: "Muhammad karim"
caddress	Text		This is the address of the Student. Example: "House 270, Road 6, Block C, Bashundhara, Dhaka, Bangladesh
ddateofbirth	Datetime	"dd/mm/yy"	This the Date of Birth of the Student. Example: "01-01-2000"
cgender	Text		This is the gender of the Student. Example: "M"
ncontactno	Number		This is the phone number of the Student. Example: "0191211141"
cemail	Text		This is the email address of the Faculty. Example: "mahady@iub.edu.bd"
cnationality	Text		This contains nationality of the student Example: "Bangladeshi"
ndepartmentid	Text		This is the Foreign Key from the Department table. Example: "CSE

Instructor_T

Name	DataType	Size	Remark
ninstructorID	Number		This is the Primary Key for Faculty. Example: "1501*** "
cname	Text		This is the first name of the instructor. Example : " Abdur Rahim"
caddress	Text		This is the address of the instructor. Example: "House 1, Road 1, Sector 1, Uttara, Dhaka, Bangladesh
ddateofbirth	DateTime	DD-MM-YYYY	This the Date of Birth of the instructor. Example: "01-01-1993"
cgender	Text		This is the gender of the instructor . Example: "F"
ncontactno	Number		This is the phone number of the instructor. Example: "01910101010"
cemail	Text		This is the email address of the instructor. Example: "rakib@iub.edu.bd"
cdepartmendid	Text		This is the Foreign Key from the Department table. Example: "CSE

Departmenthead_T

Name	DataType	Size	Remark
djoiningDate	DateTime		This contains the date when a vc took charge of his role Example : “01.01.2016”
dleavingDate	DateTime		This contains the date when a vc discharged from his role Example : “01.01.2020”
cdepartmentID	Text		This is the Foreign Key from the Department table. Example: “CSE

Dean_T

Name	DataType	Size	Remark
djoiningDate	DateTime		This contains the date when a vc took charge of his role Example : “01.01.2016”
dleavingDate	DateTime		This contains the date when a vc discharged from his role Example : “01.01.2020”

PLO_T

Name	DataType	Size	Remark
cploid	Text	5	This is the primary key for Program Learning Outcome. Example: "PLO1"
cdetails	Text		This is the details of the Program Learning Outcome. Example: "An ability to select and apply the knowledge, techniques, skills, and modern tools of the computer science and engineering discipline"
cporgramid	Text		This is the foreign key from Program table Example: "B.Sc".
cschoolid	Text		This is the Foreign Key of the table School. Example: "SETS"

CO_T

Name	DataType	Size	Remark
ccoid	Text	5	This is the Primary Key for Course Outcome. Example: "CO1"
ccoursename	Text		This is the name of the course Example: "Database management system"
cploid	Text		This is the foreign key from the Program Learning Outcome table. Example: "PLO1"

Enrollement_T

Name	DataType	Size	Remark
nenrollmentid	Number		This is the Primary Key for Enrollment Example : "12111111"
dyear	Datetime		This is the year of Enrollment Example: "2017"
denrollmntdate	DateTime	DD-MM-YYYY	This contains the date of the enrollment. Example : 30/01/2021
nstudentid	Number		This is the Foreign key from the Student Table. Example: "1800001"
cprogramid	Text		This is the Foreign Key from Program table Example: "B.Sc".

Program_T

Name	DataType	Size	Remark
cprogramid	Text		This is the Primary Key for program. Example : “BSC”
cprogramname	Text		This is the name of the program . Example : “Bachelor of Science”
cdepartmentid	Text		This is the Foreign Key from the Department table. Example: “CSE”

Course_T

Name	DataType	Size	Remark
ccourseid	Text		This is the Primary Key for the Course. Example: "CSE203"
ccoursetitle	Text		This is the name of the Course. Example: "Data Structure"
ccoursetype	Text		This is the type of the Course. Example: "Core"
cprogramid	Text		This is the Foreign Key from Program table Example: "B.Sc".
ninstructorid	Number		This is the Foreign Key from instructor table. Example :"1810000"
nsemesterID	Number		This is the Foreign Key from semester table.

Section_T

Name	DataType	Size	Remark
nsectionID	Number		This is the Primary Key for Section Example :"1001"
nsectionno	Number		This is the section number. Example: "4"
croomno	Text		This is the room number . Example : "B7107"
ncapacity	Number		This contains the total capacity of a room Example :"50"
dstarttime	Datetime		This contains the time when a class start .Example : "3 pm"
dendtime	Datetime		This contains the time when a class end. Example :"4.30 pm"

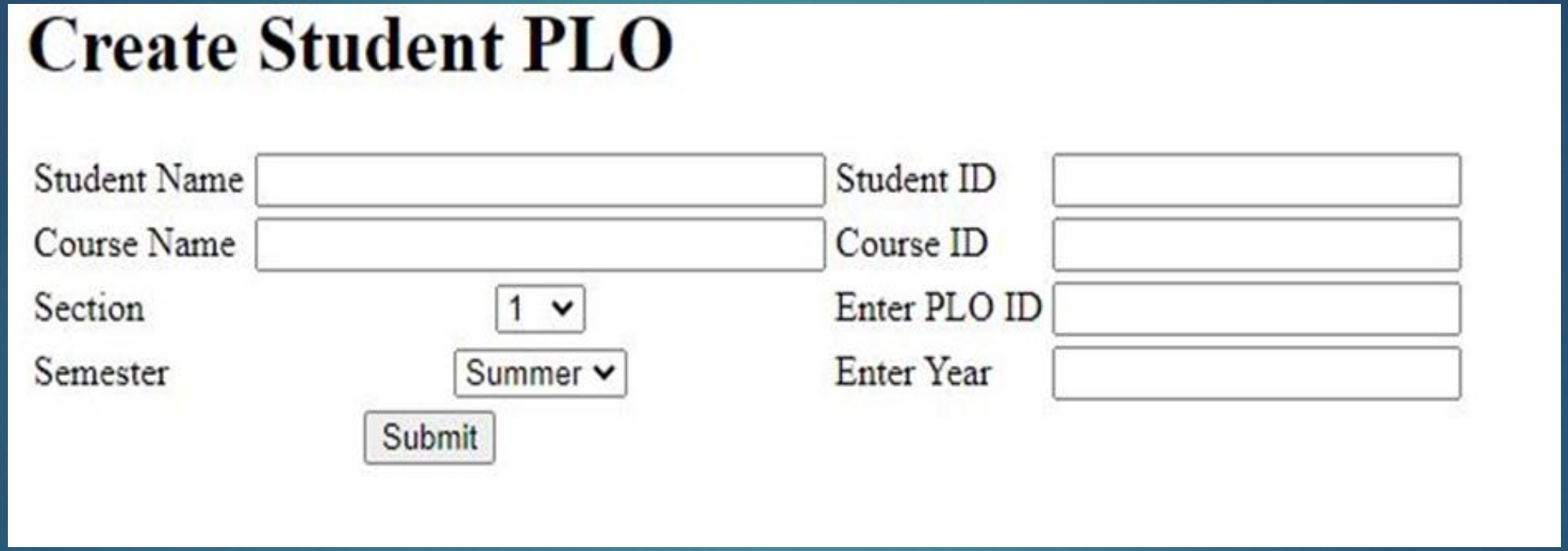
Assesment_T

Name	DataType	Size	Remark
nassesmentno	Number		This is the Primary Key for assessment . Example : "1"
cassesmenttype	Text		This is the type of assessment . Example : "Assignment ,Viva"
cmarksdistribution	Text		This contains the marks distribution
Ctotalmarksachievable	Text		This contains how much mark a student can achieve in total . Example : "100"
nsectionid	Number		This is the foreign key from section table Example" 1001"
nstudentid	Number		This is the foreign key from student table Example : "1810000"
ccoid	Text		This is the foreign key from the Program Learning Outcome table. Example: "CO1"

Semester_T

Name	DataType	Size	Remark
nSemesterid	Number		This is the Primary Key for semester
dyear	DateTime		This contains the year of that semester. Example:" 2021"
dstartdate	DateTime		This is the starting date of the semester. Example: "15.02.21"
denddate	DateTime		This is the ending date of the semester. Example: "10.05.21"

INPUT FORMS


Create Student PLO
Student Name
Student ID
Course Name
Course ID
Section
1
Enter PLO ID
Semester
Summer
Enter Year
Submit

```
html>
<body>
   <form action="script.php" method="POST">
      <table border="0">
         <h1>Create Student PLO</h1>
<div class="plo">
         <tr>
            <td>Student Name</td>
            <td align="center"><input type="text"
name="studentName" size="30"/></td>
            <td>Student ID</td>
            <td align="center"><input type="text" name="studentId"
size="20"/></td>
         </tr>
         <tr>
            <td>Course Name</td>
            <td align="center"><input type="text" name="courseName"
size="30"/></td>
            <td>Course ID</td>
            <td align="center"><input type="text" name="courseId"
size="20"/></td>
         </tr>
         <tr>
         <td>Section</td>
         <td align="center"><select type="select"
```

```
name="sectionNumber">
            <option value="Section-1">1</option>
            <option value="Section-2">2</option>
            <option value="Section-3">3</option>
            <option value="Section-4">4</option>
            <option value="Section-5">5</option>
            <option value="Section-6">6</option>
            <option value="Section-7">7</option>
            <option value="Section-8">8</option>
            <option value="Section-9">9</option>
            <option value="Section-10">10</option>
            <option value="Section-11">11</option>
            <option value="Section-12">12</option>
               <td>Enter PLO ID</td>
               <td align="center"><input type="text"
name="coursePloId" size="20"/></td>
          </td>
```

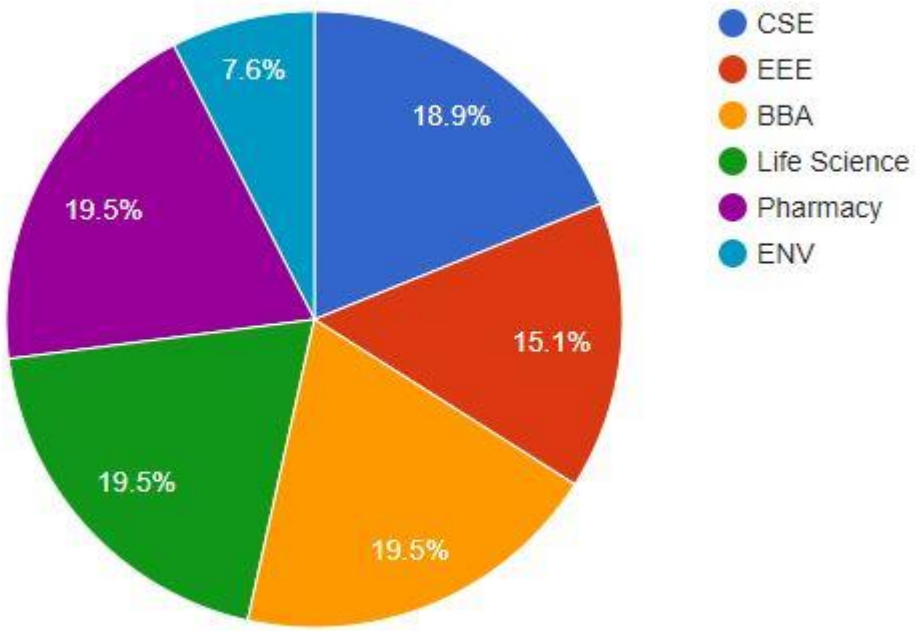
```
<          <tr>
             <td>Semester</td>
             <td align="center"><select type="semester"
name="semestername">
                 <option value="semester-1">Summer</option>
                 <option value="semester-2">Spring</option>
                 <option value="semester-3">Autumn</option>
                    <td>Enter Year</td>
                    <td align="center"><input type="text"
name="year" size="20"/></td>
             </td>
          </tr>
       </tr>
          <tr>
             <td colspan="2" align="center"><input
type="submit" value="Submit"</td>
          </tr>
           </table>
          </div>
    </form>
</body>
</html>
```

OUTPUT

```
<?php
$con = mysqli_connect("localhost", "root", "",
"charts");
if ($con) {
  echo "connected";
}
?>
<html>

<head>
  <script type="text/javascript" src="https://w
ww.gstatic.com/charts/loader.js"></script>
  <script type="text/javascript">
    google.charts.load('current', {
      'packages': ['corechart']
    });
    google.charts.setOnLoadCallback(drawChart);

    function drawChart() {

      var data = google.visualization.arrayToDa
taTable([
        ['students', 'contribution'],
        <?php
        $sql = "SELECT * FROM contribution";
        $fire = mysqli_query($con, $sql);
        while ($result = mysqli_fetch_assoc($fi
re)) {
          echo "['" . $result['student'] . "',"
 . $result['contribution'] . "],";
        }

        ?>
```

```
        ]);

        var options = {
          title: 'Department wise student Enrollment: '
        };

        var chart = new google.visualization.PieChart(docume
nt.getElementById('piechart'));

        chart.draw(data, options);
      }
    </script>
</head>

<body>
    <div id="piechart" style="width: 900px; height: 500px;">
</div>
</body>

</html>
```

Department wise student Enrollment:



THANK YOU