**CHAPTER 4: PHYSICAL SYSTE DESIGN**

**4.1: FRONT END LOOK**

**A screenshot of a computer

Description automatically generated**

Figure 1: Users

**Graphical user interface, text, application

Description automatically generated**

Figure 2: Add new User

**Graphical user interface, application, email, Teams

Description automatically generated**

Figure 3 : Courses

Graphical user interface, application

Description automatically generated

Figure 4: Add New Course

A screenshot of a computer

Description automatically generated

Figure 5 : Program

Graphical user interface, application

Description automatically generatedFigure 6: Add new Program

Graphical user interface, application

Description automatically generated

Figure 7: Entry Marks

Graphical user interface, application, Teams

Description automatically generated

Figure 8: Entry Marks Mass

Graphical user interface, text, application

Description automatically generated

Figure 9: Higher Management Dashboard

Graphical user interface, text, application

Description automatically generated

Figure 10: Student Result

**4.2: RELATED SQL USED**

## Section 4.1.1: Input Forms – Add User

### Purpose

Here admin user will create other user profiles such as student, faculty etc.

<?php

    require 'mysql.php';

    // geting post requests

    $id = $\_POST['userID'];

    $fName = $\_POST['firstName'];

    $lName = $\_POST['lastName'];

    $prog = $\_POST['programID'];

    $email = $\_POST['email'];

    $password = $\_POST['password'];

    $role = strtolower($\_POST['role']);

   $store = "INSERT INTO tbluser (userID, firstName, lastName, programID, email, password, role) VALUES

          ('$id', '$fName', '$lName', '$prog', '$email', '$password' , '$role')";

    if($mysql->query($store)){

        header("Location: ../admin/add-user.php");

    }else{

        header("Location: ../admin/add-user.php");

    }

?>

## **Section 4.1.2: Input Forms – Add Program and PLO**

### Purpose

Since this system tracks PLO achievement of students of any courses in any program, so we must input the PLO data with their corresponding program. The system cannot collect the data automatically, so manually inputting the programs with their PLO’s are done using input form.

<?php

    require 'mysql.php';

    $id = $\_POST['programID'];

    $programName = $\_POST['programName'];

    $school = $\_POST['school'];

    $sql = "INSERT INTO tblprogram2(programID, programName, school) VALUES ('$id', '$programName', '$school')";

    //echo $sql;

    if($mysql->query($sql) == FALSE){

        header("Location: ../admin/add-program.php?failed=1");

    }

    $i = 1;

    while(isset($\_POST['title'.$i])){

        $name = $\_POST['title'.$i];

        $sql = "INSERT INTO plo(programID, plo\_no, plo\_name) VALUES

            ('$id', $i, '$name')";

        if($mysql->query($sql) == FALSE){

            header("Location: ../admin/add-program.php?failed=1");

        }

        $i++;

    }

    header("Location: ../admin/add-program.php?success=1");

?>

**Section 4.1.3: Input Forms – Add Course with CO**

Purpose

Each individual course must be added to the system with their respective CO’s. In order to do that, an input form must be used to give inputs to the system.

<?php

    require 'mysql.php';

    $id = $\_POST['courseID'];

    $program\_id = $\_POST['programID'];

    $credit = $\_POST['credit'];

    $total\_co = $\_POST['totalCO'];

    $title = $\_POST['courseTitle'];

    $sql = "INSERT INTO tblcourse (courseID, programID, courseTitle, credit, totalCO) VALUES

            ('$id', '$program\_id', '$title', $credit, $total\_co)";

    if($mysql->query($sql) == FALSE){

        header("Location: ../admin/add-course.php?failed=1");

    }

    for($i=1; $i<=15; $i++){

        if(isset($\_POST["plo-co".$i])){

            $sql = "SELECT sl FROM tblplo WHERE programID = '$programID' AND ploNo = $i";

            $plo\_id = $mysql->query($sql)->fetch\_assoc()['sl'];

            $data = $\_POST["plo-co".$i];

            $field = ""; $val ="";

            foreach($data as $co){

                $field .= 'co'. $co . ', ';

                $val .= '1, ';

            }

            $sql = "INSERT INTO tblco (courseID, ploID, ".substr($field, 0, -2).") VALUES ('$id', $plo\_id, ".substr($val, 0, -2).")";

            if($mysql->query($sql) == FALSE){

                header("Location: ../admin/add-course.php?failed=1");

            }

        }

    }

    header("Location: ../admin/add-course.php?success=1");

?>

**Section 4.1.4: Input Forms – Add Marks Individual**

### Purpose

This input form requires marks entry process with which a students’ data can be entered based on a course in a particular semester. This is then stored in the database which can be retrieved when required. Marks entry form can input all the assessments of a particular student.

    require 'mysql.php';

    $student\_id = $\_POST['studentID'];

    $course\_id = $\_POST['courseID'];

    $exam\_name = $\_POST['examName'];

    $semester = $\_POST['semester'];

    $section = $\_POST['section'];

    $field = "";

    $val = "";

    $i=1;

    while(isset($\_POST['tblco'.$i])){

        $field .= 'q'.$i.'\_mark, ' . 'q'.$i.'\_co, ' . 'q'.$i.'\_max, ';

        $val .= $\_POST['mark'.$i].', '.$\_POST['co'.$i].', '.$\_POST['max'.$i].', ';

        $i++;

    }

    $sql = "INSERT INTO tblmarks(studentID, courseID, examName, semester, section, ".substr($field, 0, -2).") VALUES

            ('$student\_id', '$course\_id', '$exam\_name', '$semester', '$section', ".substr($val, 0, -2).")";

    echo $sql . '<br>';

    $mysql->query($sql);

    header("Location: ../faculty/entry-marks.php?success=1");

**Section 4.1.5: Input Forms – Add Marks Mass**

Purpose

This input form requires marks entry process with which many students data can be entered on any course in any semester. This is then stored in the database which can be retrieved when required. Marks entry form can input all the assessments of all the students using a .csv format file.

<?php

    require 'mysql.php';

    $course\_id = $\_POST['courseID'];

    $exam\_name = $\_POST['examName'];

    $semester = $\_POST['semester'];

    $section = $\_POST['section'];

    $file = fopen($\_FILES['file']['tmp\_name'], "r");

    fgetcsv($file, 200); // dumping header

    $co = array();

    $f = 1; $i=1;

    foreach(fgetcsv($file, 200) as $c){

        if($f == 1){

            $f = 0;

            continue;

        }

        $co[$i] = $c;

        $i++;

    }

    $max = array();

    $f = 1; $i=1;

    foreach(fgetcsv($file, 200) as $m){

        if($f == 1){

            $f = 0;

            continue;

        }

        $max[$i] = $m;

        $i++;

    }

    while($marks = fgetcsv($file, 200)){

        $student\_id;

        $field = "";

        $val = "";

        $f = 1; $i=1;

        foreach($marks as $m){

            if($f==1){

                $student\_id = $m;

                $f=0;

                continue;

            }

            $field .= 'q'.$i.'\_mark, ' . 'q'.$i.'\_co, ' . 'q'.$i.'\_max, ';

            $val .= $m.', '.$co[$i].', '.$max[$i].', ';

            $i++;

        }

        $sql = "INSERT INTO tblmarks(studentID, courseID, examName, semester, section, ".substr($field, 0, -2).") VALUES

            ('$student\_id', '$course\_id', '$exam\_name', '$semester', '$section', ".substr($val, 0, -2).")";

        $mysql->query($sql);

    }

    header("Location: ../faculty/entry-marks-mass.php?success=1");

?>

**Section 4.2.1: Output Query and Reports – Higher Management Dashboard**

Purpose and Use

It gives the overall summary of the system which includes the total number of courses that uses OBE model, total students who are evaluated with OBE model, number of faculty evaluated using OBD, total number of PLO set in the program. It can be used to gather information about an institution by the higher management.

<?php

    require 'php/middleware.php';

    require 'php/mysql.php';

    $sql = "SELECT \* FROM tblcourse";

    $course = $mysql->query($sql)->num\_rows;

    $sql = "SELECT \* FROM tbluser WHERE role='student'";

    $student = $mysql->query($sql)->num\_rows;

    $sql = "SELECT \* FROM tbluser WHERE role='faculty'";

    $faculty = $mysql->query($sql)->num\_rows;

    $sql = "SELECT \* FROM tblplo";

    $plo = $mysql->query($sql)->num\_rows;

?>

**Section 4.2.2: Output Query and Reports – PLO Achievement**

Purpose and Use

It is used to show student wise PLO analysis which includes PLO total percentage score for each PLO calculated from the scores achieved in each CO associated with the corresponding PLO among all the courses the student has done so far. Upon entering a student id course wise PLO analysis can be viewed. Also, a tabular view of student wise PLO achievement can be viewed.

<?php

    require 'mysql.php';

    if(isset($\_GET['studentID'])){

        $id = $\_GET['studentID'];

        $sql = "SELECT \* FROM tblmarks WHERE studentID = $id";

        $sMarks = $mysql->query($sql);

        //course based total co marks

        $cMarks = array();

        $cTotal = array();

        foreach($sMarks as $marks){

            $course = $marks['courseID'];

            for($i=1; $i<=10; $i++){

                if(isset($marks["q".$i."\_co"]) && $marks["q".$i."\_co"]!=0){

                    $co = $marks["q".$i."\_co"];

                    if(isset($cMarks[$course][$co])){

                        $cMarks[$course][$co] += $marks["q".$i."\_mark"];

                        $cTotal[$course][$co] += $marks["q".$i."\_max"];

                    }else{

                        $cMarks[$course][$co] = $marks["q".$i."\_mark"];

                        $cTotal[$course][$co] = $marks["q".$i."\_max"];

                    }

                }

            }

        }

        $pMarks = array();

        $pTotal = array();

        foreach($cMarks as $c => $v){

            $sql = "SELECT \* FROM tblco WHERE courseID = '$c'";

            $plos = $mysql->query($sql);

            foreach($plos as $plo){

                $pId = $plo['ploID'];

                for($i=1; $i<=10; $i++){

                    if(isset($plo["co".$i]) && $plo["co".$i]==1){

                        if(isset($pMakrs[$c][$pId])){

                            $pMarks[$c][$pId] += $cMarks[$c][$i];

                            $pTotal[$c][$pId] += $cTotal[$c][$i];

                        }else{

                            $pMarks[$c][$pId] = $cMarks[$c][$i];

                            $pTotal[$c][$pId] = $cTotal[$c][$i];

                        }

                    }

                }

            }

        }

        //total marks in plo

        $pfMarks = array();

        $pfTotal = array();

        foreach($pMarks as $c => $v){

            foreach($v as $i => $j){

                if(isset($pfMarks[$i])){

                    $pfMarks[$i] += $j;

                    $pfTotal[$i] += $pTotal[$c][$i];

                }else{

                    $pfMarks[$i] = $j;

                    $pfTotal[$i] = $pTotal[$c][$i];

                }

            }

        }

        //student info

        $sql = "SELECT \* FROM tbluser WHERE userID = $id";

        $student = $mysql->query($sql)->fetch\_assoc();

        //total plo

        $sql = "SELECT \* FROM tblplo WHERE programID = '".$student['programID']."'";

        $ploNum = $mysql->query($sql)->num\_rows;

        $color = ["", "#1FE7C4", "#E45C17", "#06B97B", "#8CE026", "#E1CCFF", "#5BA2CC", "#0A2E82", "#957107", "#80CF18"];

    }

?>

**Section 4.2.3: Output Query and Reports – Progress View**

Purpose and Use

It contains student and course progress views. For a given student, it shows the count of PLO’s expected to be achieved and the counts achieved at the end of each semester. Upon selecting a certain course, it shows the number of students in that course with the percentages of CO achieved of failed.

<?php

    require 'mysql.php';

    if(isset($\_GET['studentID'])){

        $id = $\_GET['studentID'];

        $sql = "SELECT DISTINCT semester FROM tblmarks WHERE studentID = $id";

        $sems =  $mysql->query($sql);

        $ploProg = array();

        foreach($sems as $sem){

            $res = seeker($sem['semester'], $id);

            $ploProg[$sem['semester']]['total'] = $res['p'];

            $ploProg[$sem['semester']]['com'] = $res['t'];

        }

    }if(isset($\_GET['c'])){

        $crs = $\_GET['c'];

        $sql = "SELECT DISTINCT studentID FROM tblmarks WHERE courseID = '$crs'";

        $uList = $mysql->query($sql);

        $totalS = $uList->num\_rows;

        $report = array();

        foreach($uList as $u){

            $usr = $u['studentID'];

            $ret = seeker2($crs, $usr);

            foreach($ret["co"] as $i => $j){

                if($j==1){

                    if(isset($report["co"][$i])){

                        $report["co"][$i]++;

                    }else{

                        $report["co"][$i] = 1;

                    }

                }

            }

            foreach($ret["plo"] as $i => $j){

                if($j==1){

                    if(isset($report["plo"][$i])){

                        $report["plo"][$i]++;

                    }else{

                        $report["plo"][$i] = 1;

                    }

                }

            }

        }

        ksort($report["co"]);

        ksort($report["plo"]);

    }

    function seeker($sem, $uid){

        require 'mysql.php';

        $sql;

        if($sem!="null"){

            $sql = "SELECT \* FROM tblmarks WHERE studentID = $uid AND semester = '$sem'";

        }else{

            $sql = "SELECT \* FROM tblmarks WHERE studentID = $uid";

        }

        $sMarks = $mysql->query($sql);

        $cMarks = array();

        $cTotal = array();

        foreach($sMarks as $marks){

            $course = $marks['courseID'];

            for($i=1; $i<=10; $i++){

                if(isset($marks["q".$i."\_co"]) && $marks["q".$i."\_co"]!=0){

                    $co = $marks["q".$i."\_co"];

                    if(isset($cMarks[$course][$co])){

                        $cMarks[$course][$co] += $marks["q".$i."\_mark"];

                        $cTotal[$course][$co] += $marks["q".$i."\_max"];

                    }else{

                        $cMarks[$course][$co] = $marks["q".$i."\_mark"];

                        $cTotal[$course][$co] = $marks["q".$i."\_max"];

                    }

                }

            }

        }

        $pMarks = array();

        $pTotal = array();

        foreach($cMarks as $c => $v){

            $sql = "SELECT \* FROM tblco WHERE courseID = '$c'";

            $plos = $mysql->query($sql);

            foreach($plos as $plo){

                $pId = $plo['ploID'];

                for($i=1; $i<=10; $i++){

                    if(isset($plo["co".$i]) && $plo["co".$i]==1){

                        if(isset($pMakrs[$c][$pId])){

                            $pMarks[$c][$pId] += $cMarks[$c][$i];

                            $pTotal[$c][$pId] += $cTotal[$c][$i];

                        }else{

                            $pMarks[$c][$pId] = $cMarks[$c][$i];

                            $pTotal[$c][$pId] = $cTotal[$c][$i];

                        }

                    }

                }

            }

        }

        $res = array();

        $res['t'] = 0;

        $pTrack = array();

        foreach($pMarks as $c => $v){

            foreach($v as $i => $j){

                $pTrack[$i]=1;

                if($j \* 100 / $pTotal[$c][$i]>=40){

                    $res['t']++;

                }

            }

        }

        $res['p'] = count($pTrack);

        return $res;

    }

    function seeker2($crs, $uid){

        require 'mysql.php';

        $sql = "SELECT \* FROM tblmarks WHERE studentID = $uid AND courseID = '$crs'";

        $sMarks = $mysql->query($sql);

        $cMarks = array();

        $cTotal = array();

        foreach($sMarks as $marks){

            $course = $marks['courseID'];

            for($i=1; $i<=10; $i++){

                if(isset($marks["q".$i."\_co"]) && $marks["q".$i."\_co"]!=0){

                    $co = $marks["q".$i."\_co"];

                    if(isset($cMarks[$course][$co])){

                        $cMarks[$course][$co] += $marks["q".$i."\_mark"];

                        $cTotal[$course][$co] += $marks["q".$i."\_max"];

                    }else{

                        $cMarks[$course][$co] = $marks["q".$i."\_mark"];

                        $cTotal[$course][$co] = $marks["q".$i."\_max"];

                    }

                }

            }

        }

        $pMarks = array();

        $pTotal = array();

        foreach($cMarks as $c => $v){

            $sql = "SELECT \* FROM tblco WHERE courseID = '$c'";

            $plos = $mysql->query($sql);

            foreach($plos as $plo){

                $pId = $plo['ploID'];

                for($i=1; $i<=10; $i++){

                    if(isset($plo["co".$i]) && $plo["co".$i]==1){

                        if(isset($pMakrs[$c][$pId])){

                            $pMarks[$c][$pId] += $cMarks[$c][$i];

                            $pTotal[$c][$pId] += $cTotal[$c][$i];

                        }else{

                            $pMarks[$c][$pId] = $cMarks[$c][$i];

                            $pTotal[$c][$pId] = $cTotal[$c][$i];

                        }

                    }

                }

            }

        }

        $stats = array();

        foreach($cMarks as $c => $v){

            foreach($v as $i => $m){

                if(($m \* 100 / $cTotal[$c][$i]) >=40 ){

                    $stats["co"][$i] = 1;

                }else{

                    $stats["co"][$i] = 0;

                }

            }

        }

        foreach($pMarks as $p => $v){

            foreach($v as $i => $m){

                if(($m \* 100 / $pTotal[$p][$i]) >=40 ){

                    $stats["plo"][$i] = 1;

                }else{

                    $stats["plo"][$i] = 0;

                }

            }

        }

        return $stats;

    }

?>

**Section 4.2.4: Output Query and Reports – Student Result**

Purpose and Use

It is used to show the students result of PLO achievement in a pie chart for all the courses that student has completed upon entering the students id.

<?php

    require '../php/mysql.php';

    $color = ["", "#1FE7C4", "#E45C17", "#06B97B", "#8CE026", "#E1CCFF", "#5BA2CC", "#0A2E82", "#957107", "#80CF18"];

    // session\_start();

    $id = $\_SESSION['studentID'];

    $sql = "SELECT \* FROM tbluser WHERE userID = $id";

    $uInfo = $mysql->query($sql)->fetch\_assoc();

    $sql = "SELECT \* FROM tblplo WHERE programID = '".$uInfo['programID']."'";

    $totalPlo = $mysql->query($sql)->num\_rows;

    $sql = "SELECT \* FROM tblmarks WHERE studentID = $id";

    $sMarks = $mysql->query($sql);

        //course based total co marks

    $cMarks = array();

    $cTotal = array();

    foreach($sMarks as $marks){

        $course = $marks['courseID'];

        for($i=1; $i<=10; $i++){

            if(isset($marks["q".$i."\_co"]) && $marks["q".$i."\_co"]!=0){

                $co = $marks["q".$i."\_co"];

                if(isset($cMarks[$course][$co])){

                    $cMarks[$course][$co] += $marks["q".$i."\_mark"];

                    $cTotal[$course][$co] += $marks["q".$i."\_max"];

                }else{

                    $cMarks[$course][$co] = $marks["q".$i."\_mark"];

                    $cTotal[$course][$co] = $marks["q".$i."\_max"];

                }

            }

        }

    }

    $pMarks = array();

    $pTotal = array();

    foreach($cMarks as $c => $v){

        $sql = "SELECT \* FROM tblco WHERE courseID = '$c'";

        $plos = $mysql->query($sql);

        foreach($plos as $plo){

            $pId = $plo['ploID'];

            for($i=1; $i<=10; $i++){

                if(isset($plo["co".$i]) && $plo["co".$i]==1){

                    if(isset($pMakrs[$c][$pId])){

                        $pMarks[$c][$pId] += $cMarks[$c][$i];

                        $pTotal[$c][$pId] += $cTotal[$c][$i];

                    }else{

                        $pMarks[$c][$pId] = $cMarks[$c][$i];

                        $pTotal[$c][$pId] = $cTotal[$c][$i];

                    }

                }