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Student 2, ID: 2026765	Name: Gonzalo Mandrion Flores	Contribution: 100	%
Student 3, ID: 2015356	Name: Ryan Johnson	Contribution: 100	%
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----- Do not remove this declaration or **NO** marks will be given -----

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1)

```
SELECT DISTINCT a.sid
FROM (SELECT DISTINCT smod.sid,
      mods.did
      FROM smod
      INNER JOIN mods
      ON smod.mid = mods.mid) a,
(SELECT DISTINCT smod.sid,
      mods.did
      FROM smod
      INNER JOIN mods
      ON smod.mid = mods.mid) b
WHERE a.sid = b.sid
AND a.did <> b.did
ORDER BY a.sid,
      a.did;
```

We first gather a table that contains all the sid from students with their corresponding programs, without any duplicates, this allows us to search what students are in different departments. This would be done with the code below

```
(SELECT DISTINCT smod.sid,
      mods.did
      FROM smod
      INNER JOIN mods
      ON smod.mid = mods.mid)
```

We then have the outer select which allows us to create a table of the students with different department modules, this way we are able to obtain a distinct list of sid containing all of the students with 2 or more programmes. Which can be seen on the next page.

+-----+	148896	154851	163363	173008	180136	197961	
sid	149100	154869	163419	173247	180285	198030	
+-----+	149172	154938	163455	173597	180523	198171	
129002	149418	154951	163475	173895	180643	198181	
129275	149427	154992	163630	173898	180720	198243	
135048	149588	154995	164102	174134	180726	198247	
135217	149724	155010	164327	174147	181032	198254	
139547	149973	155016	164373	174530	181539	198358	
139744	151784	155126	164417	174579	181616	198476	
140189	152088	155240	164458	174612	181620	198676	
140282	152109	155405	164752	174699	181653	198695	
140324	152231	155425	164936	174912	181663	198821	
140600	152288	155480	165038	174969	181783	199108	
140670	152338	155572	165168	175194	181813	199238	
140694	152349	155603	165334	175247	182820	199419	
140700	152434	155643	165430	175248	183048	199471	
141131	152687	155646	165550	175306	183303	199643	
141208	152837	155670	165630	175548	183531	199705	
141279	153313	155680	165807	175660	183546	199823	
141344	153384	155703	165817	176094	184542	199975	
141364	153599	155925	165868	176099	184548	200016	
141765	153600	155928	165913	176110	184567	200182	
143265	153604	157196	166034	176237	184662	200184	
145183	153606	157275	166166	176350	184767	200269	
145229	153644	157404	166262	176385	184771	200325	
145300	153654	157473	166296	176431	184987	200497	
145547	153656	157482	166557	176517	185100	200521	
147076	153685	157483	166616	176518	185106	200718	
147133	153754	157486	166746	176590	185140	201209	
147139	153992	157497	166886	176726	185170	201329	
147147	154114	157507	166911	176741	189374	201337	
147254	154119	157508	167165	176978	189453	201719	
147268	154158	157539	167214	177105	189553	201935	
147370	154185	160042	167351	177117	189738	201951	
147596	154187	160097	167431	177149	190002	202072	
147617	154210	160183	167433	177234	190004	202098	
147622	154216	160652	167706	177246	190177	202281	
147662	154225	160952	167804	177253	190337	203564	
147827	154248	161091	168043	177442	190354	204072	
148008	154304	161155	168046	177750	190616	204373	
148016	154312	161310	168089	177844	190640	205071	
148017	154317	161393	168115	177854	190774	205133	
148048	154330	161480	168147	177925	190895	205188	
148048	154413	161611	168423	178411	195052	205196	
148096	154416	161699	168516	178507	195345	205209	
148098	154426	162064	168517	178673	195408	205255	
148282	154437	162086	168520	178810	195468	205290	
148331	154443	162109	168620	178951	195598	205300	
148332	154454	162146	168851	179018	195608	205303	
148361	154468	162289	169063	179021	195725	205763	
148362	154477	162397	169149	179169	195770	205918	
148378	154485	162613	169326	179218	195879	205988	
148380	154486	162640	169396	179284	196316		
148421	154558	162645	169446	179326	196363		
148452	154655	162647	169671	179497	196380		
148477	154703	162693	170504	179629	196476		
148507	154709	162757	170653	179711	196559		
148622	154720	162935	170667	179741	196860		
148714	154744	163031	170675	179888	197205		
148720	154773	163047	170682	179971	197280		
148799	154801	163119	170769	180000	197391		
148808	154810	163228	170790	180005	197585		
148819	154833	163234	170894	180111	197756		
							+-----+
							427 rows in set (0.056 sec)

2)

```
SELECT DISTINCT t1.lv1
FROM (SELECT Count(sid) AS count,
      lv1
      FROM enr1
      INNER JOIN prog
            ON prog.pid = enr1.pid
      WHERE ayr = '2000/01'
            AND ptitle = 'Computer Science'
      GROUP BY lv1) t1
LEFT JOIN (SELECT Count(sid) AS count,
               lv1
               FROM enr1
               INNER JOIN prog
                     ON prog.pid = enr1.pid
               WHERE ayr = '2000/01'
                     AND ptitle = 'Computer Science'
               GROUP BY lv1) t2
      ON t2.count > t1.count
      AND t2.count IS NOT NULL
WHERE t2.count IS NULL;
```

We first gather a table that contains the count of each computer science student from 2000/01 with the level that they're at. This is done with the statement below

```
SELECT Count(sid) AS count,
      lv1
FROM enr1
INNER JOIN prog
      ON prog.pid = enr1.pid
WHERE ayr = '2000/01'
      AND ptitle = 'Computer Science'
GROUP BY lv1)
```

After this we find the biggest value of count by using left join and comparing the same table with a copy, this allows us to search and find out the biggest value without using max or without ranking the tuples. We then return only the level of the last tuple that we have.

```
+-----+
| lv1 |
+-----+
| 1 |
+-----+
1 row in set (0.044 sec)
```

**Task 2 (SQL + PHP):**

```

<html>
<head>
  <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
  <title>Student Record Card</title>
  <style>
    table {
      border: black 2px solid;
      border-collapse: separate;
      border-spacing: 25px 5px;
      width:100%;
    }
    .tableB {
      border-collapse: separate;
      border-spacing: 35px 4px;
      width:100%;
      border: none;
    }
    .tableC {
      border-spacing: none;
      background-color:#e6e6fa;
    }
    h2{
      color: white;
      background-color: #0068c6;
    }
    img{
      width: 100% !important;
    }
    h4{
      font-weight: bold;
      margin: 0 0 0 0;
    }
    td{
      padding:0 15px 0 15px;
      border-style : hidden!important;
    }
  </style>
</head>
<body>
  <h2>Student Record Card</h2>

  <form action="sustudents.php" method="GET">
    <h4>Query by Student ID#:
      <input type="text" name="search_sid">
      <input type="submit" value="Submit">
    </h4>
  </form>

  <?php
    //Connects to database.
    $conn = mysqli_connect("localhost", "root", "");
    if(!$conn) {
      die ("Error connecting to MySQL: " . mysqli_error($conn));
    }

    $db_select_success = mysqli_select_db($conn, "cw250");

    if(!$db_select_success) {
      die ("Error selecting database: ".mysqli_error($conn));
    } else {
      echo "";
    }

    //Retrives entered student number.
    $requested_sid = $_GET['search_sid'];
  
```

```

//If student number not entered then do nothing.
if(!empty($_GET['search_sid'])) {
    $query = "SELECT * FROM stud WHERE sid = '$requested_sid'";
    $result = mysqli_query($conn, $query);

    //If student is found output data else return error.
    if (mysqli_num_rows($result) > 0) {

        //Selects personal details.
        echo "<h4>Personal Details</h4>";
        while ($row = mysqli_fetch_array($result, MYSQLI_BOTH)){

?>
<table>
<tr>
<td>Student ID:</td>
<td><?php echo $row['sid'] ?></td>
</tr>
<tr>
<td>Title: </td>
<td><?php echo $row['title'] ?></td>
</tr>
<tr>
<td>Full name:</td>
<td><?php echo $row['firstname'] ?> <?php echo $row['lastname'] ?></td>
</tr>
<tr>
<td>Date of birth</td>
<td><?php echo $row['dob'] ?></td>
</tr>
<tr>
<td>Gender</td>
<td>
<?php
    if ($row['gender'] == "f") {
        echo "Female";
    }else{
        echo "Male";
    }
?>
</td>
</tr>
</table>
<br>
<?php
}

```

```

//Selects Course details.
$query = "SELECT * FROM enr1
INNER JOIN prog on enr1.pid = prog.pid
INNER JOIN mods on prog.did = mods.did
WHERE sid = '$requested_sid'
ORDER BY ayr DESC";
$result = mysqli_query($conn, $query);
if (mysqli_num_rows($result) > 0) {

    echo "<h4>Course Details</h4>";
    if ($row = mysqli_fetch_array($result, MYSQLI_BOTH))
    {

?>
<table>
<tr>
<td>Ucas Code</td>
<td><?php echo $row['pid'] ?></td>

```

```

        </tr>
        <tr>
            <td>Degree Scheme</td>
            <td><?php echo $row['paward'] ?> <?php echo $row['ptitle'] ?> <?php echo $row['length']
?>yr</td>
        </tr>
        <tr>
            <td>Department</td>
            <td>
<?php
                switch ($row["did"]) {
                    case "AD":
                        echo "Administration";
                        break;

                    case "BI":
                        echo "School of Biological Sciences";
                        break;

                    case "CH":
                        echo "Chemistry";
                        break;

                    case "CS":
                        echo "Computer Science";
                        break;

                    case "CY":
                        echo "Welsh";
                        break;

                    case "EN":
                        echo "English";
                        break;

                    case "FR":
                        echo "French";
                        break;

                    case "GE":
                        echo "Geography";
                        break;

                    case "GR":
                        echo "German";
                        break;

                    case "HS":
                        echo "Hispanic Studies";
                        break;

                    case "IT":
                        echo "Italian";
                        break;

                    case "MA":
                        echo "Mathematics";
                        break;

                    case "MU":
                        echo "Music";
                        break;

                    case "PH":
                        echo "Physics";
                        break;

```

```

        case "RU":
            echo "Russian";
            break;
    } ?>
</td>
</tr>
</table>
<br>
<?php
}
}

//Selects enrolment details.
$query = "SELECT * FROM enrl
INNER JOIN prog on enrl.pid = prog.pid
INNER JOIN dept on prog.did = dept.did
WHERE sid = '$requested_sid'
ORDER BY ayr DESC";

$result = mysqli_query($conn, $query);
if (mysqli_num_rows($result) > 0) {
    echo "<h4>Enrolment and Progress</h4>";
    ?>

<div>
<table style="text-align:center">
<thead>
<tr>
<th>Academic Year</th>
<th>Enrolment Status</th>
<th>Programme</th>
<th>Course Year</th>
</tr>
</thead>
<tbody>
<?php while($row = mysqli_fetch_array($result)){ ?>
<tr>
<td><?php echo $row['ayr'] ?></td>
<td><?php
    if ($row["status"] == "NE") {
        echo "Not Enrolled";
    }
    else if($row["status"] == "E"){
        echo "Enrolled";
    }
    else if($row["status"] == "ER"){
        echo "Enrolled Repeat";
    }
    else if($row["status"] == "T"){
        echo "Enrolled then Transferred";
    }
    else if($row["status"] == "W"){
        echo "Enrolled then Withdrawn";
    }
    else if($row["status"] == "S"){
        echo "Enrolled then Suspended";
    }
    ?>
</td>
<td><?php echo $row['ptitle'] ?></td>
<td><?php echo $row['lvl'] ?></td>
</tr>
<?php } ?>
</tbody>
</table>

```

```

        </div>
        <br>

<?php
}

//Selects moduls details.
$query = "SELECT * FROM smod, mods
WHERE mods.mid = smod.mid AND sid = '$requested_sid'
ORDER BY ayr DESC";

$result = mysqli_query($conn, $query);
if (mysqli_num_rows($result) > 0) {
    echo "<h4>Module Selection</h4>";
    $is_printed = False;
    $current_year = mysqli_fetch_array($result, MYSQLI_BOTH)["ayr"];
    $total_credits = null;
    $printed_once = False;

    while ($row = mysqli_fetch_array($result, MYSQLI_BOTH)) {
        $new_year = $row["ayr"];

        if ($new_year != $current_year){
            $current_year = $new_year;
            $is_printed = False;
        }
        else if ($new_year == $current_year and $is_printed == False) {
            if ($printed_once == True) { ?>
                <p style="float:right; font-weight: bold">Total Credits: <?php echo $total_credits ?></p>
                <?php $total_credits = null; ?>
            <?php
            } else {
                $printed_once = True;
            } ?>

            <table class="tableC">
                <thead >
                    <tr>
                        <th><?php echo $row['ayr'] ?></th>
                    </tr>
                </thead>
            </table>
            <?php $is_printed = True; ?>
            <div>
                <table class="tableB">
                    <tbody>
                        <tr>
                            <td><?php echo $row['mid'] ?></td>
                            <td><?php echo $row['mtitle'] ?></td>
                            <td style="float:right"><?php echo $row['credits'] ?></td>
                        </tr>
                    </tbody>
                </table>
            </div>
            <?php $total_credits = $total_credits + $row["credits"]; ?>
        <?php
    }
}
}
else {
    echo "Student not found!";
}
}
?>

```



  
</body>  
</html>

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**Student Record Card**

Query by Student ID#:

**Personal Details**

Student ID:	145337
Title:	Ms
Full name:	Lori Willis
Date of birth	271077
Gender	Female

**Course Details**

Ucas Code	F800
Degree Scheme	BSc Geography 3yr
Department	Geography

**Enrolment and Progress**

Academic Year	Enrolment Status	Programme	Course Year
1999/00	Enrolled	Geography	3
1998/99	Enrolled	Geography	2

**Module Selection**

1999/00			
GEG319	Retail Planning		30
GEG316	Landscape and Culture		30
GEG311	Contemporary Rural Britain		30
GEG233	Europe		15

**Total Credits: 105**

1998/99			
GEG235	Africa: the Challenge of Development		15
GEG250	Geographical Research Methods		15
GEG255	Geographical Skills		15
GEG260	Geographical Thought		15
GEG220	Tourism, Heritage and Leisure		15
GEG216	Urban Services		15
GEG213	Geographies of Development		15
GEG102	Physical Geography: The Natural Environment II		10

**Total Credits: 115**

1997/98			
GEG103	Physical Geography: The Natural Environment III		10
GEG104	Human Geography: Society and Space I		10
GEG105	Human Geography: Society and Space II		10
GEG106	Human Geography: Society and Space III		10
GEG107	Geographical Methods I		10
GEG108	Geographical Methods II		10
GEG101	Physical Geography: The Natural Environment I		10

**Total Credits: 70**

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**Student Record Card**

Query by Student ID#:

**Personal Details**

Student ID:	174142
Title:	Mr
Full name:	Harry Ortiz
Date of birth	130182
Gender	Male

**Course Details**

Ucas Code	F800
Degree Scheme	BSc Geography 3yr
Department	Geography

**Enrolment and Progress**

Academic Year	Enrolment Status	Programme	Course Year
2001/02	Enrolled	Geography	2
2000/01	Enrolled	Geography	1

**Module Selection**

2001/02			
GEG255	Geographical Skills		15
GEG250	Geographical Research Methods		15
GEG222	Issues in Contemporary Urban Geography		15
GEG221	Regional Economic Planning and Policy		15
GEG220	Tourism, Heritage and Leisure		15
GEG218	Evolution of the Third World City		15
GEG216	Urban Services		15
GEG108	Geographical Methods II		10

**Total Credits: 115**

2000/01			
GEG107	Geographical Methods I		10
GEG106	Human Geography: Society and Space III		10
GEG105	Human Geography: Society and Space II		10
GEG104	Human Geography: Society and Space I		10
GEG103	Physical Geography: The Natural Environment III		10
GEG102	Physical Geography: The Natural Environment II		10
GEG101	Physical Geography: The Natural Environment I		10

**Total Credits: 70**



Query by Student ID#:

### Personal Details

Student ID:	166911
Title:	Mr
Full name:	Larry Thomas
Date of birth	250779
Gender	Male

### Course Details

Ucas Code	G500
Degree Scheme	BSc Computer Science 3yr
Department	Computer Science

### Enrolment and Progress

Academic Year	Enrolment Status	Programme	Course Year
2001/02	Enrolled	Computer Science	3
2000/01	Enrolled	Computer Science	2
1999/00	Enrolled	Computer Science	1

### Module Selection

2001/02			
CS-307	Computer Graphics II:Modelling and Rendering		10
CS-323	High Performance Microprocessors		10
CS-332	Designing Algorithms		10
CS-334	Project Specification and Development		10
CS-335	Foundations of Artificial Intelligence		10
CS-338	Internet Computing		10
CS-344	Project Implementation and Dissertation		20
CS-376	Programming with Abstract Data Types		10
CS-411	Critical Systems		10
CS-244	Software Laboratory		10

Total Credits: 110

2000/01			
CS-238	Data Communications and Computer Networks		10
CS-232	Algorithms and Complexity		10
CS-228	Operating Systems		10
CS-226	Computability Theory		10
CS-221	Functional Programming I		10
CS-219	Database Systems		10
CS-213	System Specification		10
CS-214	Object Technology		10
CS-216	Theory of Programming Languages		10
CS-217	Computer Graphics I: Image Processing and Synthesis		10
CS-218	Compilers		10
CS-113	From Languages to Hardware		10

Total Credits: 120

1999/00			
CS-114	The Process of Software Engineering		10
CS-116	Modelling Computing Systems		10
CS-121	Data Structures		10
CS-122	Algorithms and Automata		10
CS-125	Logic Programming		10
MAM111	Logic & Foundations of Mathematics		10
MAM132	Mathematical Methods		20
CS-111	Program Design		10

Total Credits: 90

