**CASE BACKGROUND**

Lake West University places a major emphasis on helping its students learn. To accomplish this mission, departments are strongly encouraged to assess their programs, majors, and courses. To better assess their courses, the Lake West University’s Economics faculty include standard questions on final exams given in core Economics courses. Once exams are graded, Dr. Hash Haddock, the Economics Department chairperson, reviews student responses to the standard exam questions to determine how well course objectives are met.

Dr. Haddock asks you to finish designing a Lake West Assessment workbook for him. The workbook should provide a convenient way to analyze student responses for the ECON 2103 final exam’s standard questions. This workbook will eventually serve as a template for other economics courses. When designing the workbook, the COUNTA, COUNTIF, COUNTIFS, and IF functions will prove useful. Conditional formatting should be used to highlight all questions with responses below a set minimum. To facilitate his analysis, Dr. Haddock will use the Filter command, PivotTable, PivotChart, and charting tools.
CASE SCENARIO

Lake West University is a four-year university located in the Midwestern United States. As part of a campus-wide initiative, Lake West University’s Economics Department recently updated its assessment plan. As part of its updated assessment plan, the Economics Department includes a standard set of questions on all ECON 2103 final exams. ECON 2103 is an introductory economics course, and all business majors take this course as part of their degree plan. As the ECON 2103 course does not have prerequisite courses, freshmen, sophomores, juniors, and seniors enroll in the course. Each semester several ECON 2103 sections are offered.

Dr. Haddock needs a system that enables him to analyze results for the standard questions across all ECON 2103 sections, as well as the individual sections of the course. Dr. Haddock envisions using this system to compare responses between various semesters as well. He wants a standard template developed, so he can use the same format for other Economics Department course offerings. As you are Dr. Haddock’s assistant, you are tasked with developing a Microsoft Excel workbook to track student responses for the ECON 2103 final exam standard questions.

Design Specifications

At the end of the semester, all ECON 2103 section instructors give Dr. Haddock their student responses for the final exams. No standardized reporting format has been implemented, so Dr. Haddock wants a standard workbook developed so all instructors will use the same reporting format. He feels that a standard workbook format enables him to easily consolidate section data into the Lake View Assessment workbook, allowing him to analyze results across all sections.

Dr. Haddock hands you a copy of an incomplete workbook called Lake West Assessment. Although Dr. Haddock has begun incorporating each section’s student responses into the workbook, he has not had time to format the workbook or complete its design. Figure 1 shows how data are currently organized for one of the sections.

![Figure 1: Sample Worksheet](image-url)

As you study the workbook, you notice that the workbook contains several worksheets. Although Dr. Haddock initially created a separate worksheet for each section, he mentions that he would now like all student responses included on a single worksheet called Response. In the Response worksheet, Dr. Haddock wants counts of the correct and
incorrect responses for each question. He also wants to see correct and incorrect counts by major and by classification.

As you study the student response data, you notice that student names are not included. Dr. Haddock indicates that he wants a number assigned to each student and does not want to include student names. He does want the student’s major, classification, and response to each of the 10 standard questions included.

Dr. Haddock asks you to create a summary worksheet. For each section, the summary worksheet should show the correct response counts, incorrect response counts, and correct response percentages for each question by section. He also would like to see a correct response percentage for each question for all sections.

Dr. Haddock considers a correct response rate of 70 percent as acceptable. Response percentages lower than 70 percent are unacceptable and are marked for further analysis. Correct response percentages lower than 70 percent should display with a light red fill and dark red text. Dr. Haddock wants to see a count for correct responses, a count for incorrect responses, and the percentage of correct responses for each major. He also would like the same information organized by classification.

To facilitate his analysis, Dr. Haddock asks you to prepare Correct Response, Major Comparison, and Classification charts. You are free to select the chart format. The Correct Response chart compares each major’s correct response percentages for each question. Dr. Haddock wants to know the majors of the students enrolled in the ECON 2103 sections. He will use the Major Comparison chart to view a breakdown by major. He asks that the Major Comparison chart provide both a count and a percentage for each major. Dr. Haddock wants to know how many seniors, juniors, sophomores, and freshmen took the ECON 2103 course. The Classification chart provides counts and percentages for the freshmen, sophomores, juniors, and seniors taking ECON 2103.

As Dr. Haddock is the department chairperson, he manages several economics classes. He wants to use this workbook for other classes, and requests that you create a template based on your newly created workbook.

**Information Specifications**

In addition to the information requests specified above, Dr. Haddock requests answers for the following questions.

1. Overall, which major’s students answered the most questions correctly?

2. Which major’s students answered the least number of questions correctly?

3. Which student(s) answered the most questions correctly?

4. Which section’s students answered the most questions correctly?

5. Overall, which classification answered the most questions correctly?
6. How do freshmen economics majors compare to freshmen MIS majors?

7. For final exam Question 10, prepare a chart that compares the correct responses given by the different classifications across all sections. (You select the chart.)

**Implementation Concerns**

Although you are free to work with the design of your workbook, the worksheets should have a consistent, professional appearance. When designing the worksheets, you should apply basic cell and worksheet formatting principles.

Depending on how you choose to design the workbook, this case may require you to create new worksheets, modify existing worksheets, and consolidate information into a summary worksheet. To prepare this workbook according to Dr. Haddock's specifications, you will create formulas, use several functions, and use the PivotTable and PivotChart report tools. Your worksheet's design may require you to use the COUNTIFS function to determine response counts. The COUNTIFS function allows you to use multiple criteria to evaluate multiple cell ranges and count when the multiple criteria are met. You should use your system's online help feature to learn more about the COUNTIFS function.

When designing the workbook, cells containing a correct response percentage less than 70 percent use a light red fill with dark text. The conditional formatting command can accomplish this task. If you are unfamiliar with conditional formatting, use your system's online help feature to learn more about conditional formatting.

Flexibility is one of the key aspects of this case. Dr. Haddock will use this workbook as a template for other classes. When designing the workbook, you should design a workbook that is easily adaptable as Dr. Haddock's information needs change. For instance, the Test Your Design section asks you to modify the workbook's design to match the standard questions to their objective.

**Test Your Design**

After creating the Lake View Assessment workbook, you should test your design. Perform the following steps.

1. Professor Jones submitted responses for two addition students from Section 1. Please enter the following information into the appropriate worksheet(s).

<table>
<thead>
<tr>
<th>Section 1: Instructor Jones</th>
<th>Student</th>
<th>Student Major</th>
<th>Classification</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>Q5</th>
<th>Q6</th>
<th>Q7</th>
<th>Q8</th>
<th>Q9</th>
<th>Q10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assign Next Available Number</td>
<td>MIS</td>
<td>Junior</td>
<td>c</td>
<td>e</td>
<td>d</td>
<td>e</td>
<td>d</td>
<td>e</td>
<td>d</td>
<td>e</td>
<td>d</td>
<td>e</td>
<td>c</td>
</tr>
<tr>
<td>Assign Next Available Number</td>
<td>FIN</td>
<td>Sophomore</td>
<td>e</td>
<td>d</td>
<td>b</td>
<td>b</td>
<td>d</td>
<td>c</td>
<td>d</td>
<td>e</td>
<td>c</td>
<td>c</td>
<td></td>
</tr>
</tbody>
</table>

70
2. Based on the following table, identify the sections achieving course objectives.

<table>
<thead>
<tr>
<th>Objectives and Matching Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 1</td>
</tr>
<tr>
<td>Objective 2</td>
</tr>
<tr>
<td>Objective 3</td>
</tr>
<tr>
<td>Objective 4</td>
</tr>
</tbody>
</table>

3. Based on the acceptable percentage rate, which section did not meet at least 4 of its objectives?

4. Based on the acceptable percentage rate, did any section meet all of its objectives?

**CASE DELIVERABLES**

In order to satisfactorily complete this case, you should build the workbook as described in the case scenario and then prepare both written and oral presentations. Unless otherwise specified, submit the following deliverables to your professor.

1. A written report discussing any assumptions you have made about the case and the key elements of the case. Additionally, what features did you add to make the worksheets more functional? User friendly? (Please note that these assumptions cannot violate any of the requirements specified above and must be approved by your professor.)

2. A printout of each worksheet. (This includes your charts and PivotTables.)

3. A printout of each worksheet’s formulas.

4. An electronic, working copy of your workbook that meets the criteria mentioned in the case scenario and specifications sections.

5. Results for each question posed above. (A memo to your instructor discussing these results should also be provided.)

6. As mentioned above, you should prepare an oral presentation. (Your instructor will establish the time allocated for your presentation.) You should use a presentation package and discuss the key features of your workbook. Also, discuss how the workbook is beneficial for Dr. Haddock. What additional information should be included in the workbook to make it more useful?