

Grades auto-filler

This project is an assistant to TAs and Professors in our department. It should provide an easy way to fill the grades electronically, and it should be able to correct MCQ bubble sheet exams automatically.

Module 1 (Grades sheet)

Ordinary grades sheet: in this mode, you are required to work on a printed paper of grades' sheet like the following:

Fall-2019		Class list for Tutorial Image Processing and Computer Vision (CMPN446) Location											
Code	Student Name	English Name											
1111111	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111112	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111113	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111114	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111115	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111116	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111117	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111118	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111119	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111120	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111121	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111122	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111123	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111124	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111125	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111126	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111127	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111128	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111129	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111130	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111131	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111132	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111133	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111134	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111135	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111136	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111137	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111138	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111139	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111140	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111141	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111142	احمد محمد محمد	Ahmed Mohamed Mohamed											
1111143	احمد محمد محمد	Ahmed Mohamed Mohamed											

TAs or professors will fill this sheet with the corresponding grades for each column for each student. Then, a picture taken by a mobile camera will be the input to the required system.

Neither the paper nor the photo will be in a perfect state. You should deal with:

1. Different angles of capturing (Skewing, orientation, scale) but no upside down.
2. Different ink colors (or clear pencils).

3. Different formats for the sheet (for example, Different sizes for rows and columns and so on).
4. Different hand-writing filling.
5. Different number of students.
6. And so on.

Hint: this should be easy as you are always sure there will be a table.

Your output should be an excel sheet that contains a sheet similar to the one (or you can take the original sheet and just fill it, whichever is easier for you).

The following data should be converted to text:

1. Printed Student ID: (should be implemented using (1) already-made OCR - (2) features + classifier. User should choose method 1 or 2 before processing).
2. The following written symbols (no OCR can be used):

- a. ✓ (output should be 5)
 - b. × (output should be 0)
 - c. - (output should be 0)
 - d. **Empty cell** (output should be empty cell)
 - e. **Stacked Vertical lines** ||| in the cell (but they won't be perfectly vertical as they are hand-written) [output should be i where i is the number of lines]
 - f. **Stacked Horizontal lines** - in the cell (but they won't be perfectly horizontal as they are hand-written) [output should be (5 - i) where i is the number of lines].
 - g. ? (output should be an empty cell with a red background color).
- ⇒ a,b,c,d should be as accurate as possible.
3. Numeric written values (should be implemented using (1) already-made OCR - (2) features + classifier. User should choose method 1 or 2 before processing).

Module 2 (Bubble sheet correction)

The input of this module is a bubble sheet like the following:

Name _____ Dofte _____

1.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
28.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
33.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
34.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
39.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
42.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
43.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
44.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
45.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
46.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
47.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
48.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
49.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
50.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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However, instead of Name, we will use student ID (and to make it easier, student ID will be added in a box). You should deal with different formats:

1. Different number of questions.
2. Different number of choices.
3. Different formats (given that, in all formats, bubbles will be vertically aligned).

You will also be given model answer a text in the following format:

A

B

C

A

A

And so on.

You should produce a spreadsheet with the following:

Code	Student Name	English Name	Q1	Q2
1111111	احمد محمد محمد	Ahmed Mohamed Mohamed	1	0
1111112	احمد محمد محمد	Ahmed Mohamed Mohamed	0	1
1111113	احمد محمد محمد	Ahmed Mohamed Mohamed	1	0
1111114	احمد محمد محمد	Ahmed Mohamed Mohamed	0	1
1111115	احمد محمد محمد	Ahmed Mohamed Mohamed	1	0
1111116	احمد محمد محمد	Ahmed Mohamed Mohamed	0	1
1111117	احمد محمد محمد	Ahmed Mohamed Mohamed	1	0
1111118	احمد محمد محمد	Ahmed Mohamed Mohamed	1	1
1111119	احمد محمد محمد	Ahmed Mohamed Mohamed	1	0
1111120	احمد محمد محمد	Ahmed Mohamed Mohamed	1	1
1111121	احمد محمد محمد	Ahmed Mohamed Mohamed	1	1
1111122	احمد محمد محمد	Ahmed Mohamed Mohamed	0	1
1111123	احمد محمد محمد	Ahmed Mohamed Mohamed	1	1
1111124	احمد محمد محمد	Ahmed Mohamed Mohamed	0	1
1111125	احمد محمد محمد	Ahmed Mohamed Mohamed	1	0
1111126	احمد محمد محمد	Ahmed Mohamed Mohamed	0	1
1111127	احمد محمد محمد	Ahmed Mohamed Mohamed	1	0
1111128	احمد محمد محمد	Ahmed Mohamed Mohamed	1	1
1111129	احمد محمد محمد	Ahmed Mohamed Mohamed	1	0
1111130	احمد محمد محمد	Ahmed Mohamed Mohamed	1	1
				1

For each correct answer, you give 1, and for each wrong answer, you show 0.

Final notes:

1. Students who choose this idea can be given multiple grade sheets upon request.
2. Your project may be used after delivery.
3. All grading values should be read from a file (question grade, wrong answer grade, and so on).