

Youtube video part 7 Python exercise

This is the sort of exercise you may be set as a student for a coding project:

Task question

Your school is holding an election for student representative with five candidates:

Ann Hathaway, Bill Shakespeare, Joan D'Ark, Robin Hood, Bill Gates

Write an application to do the following tasks:

1. Allow voters to select their candidate, with a chance to correct the wrong choice.
2. As soon as one person has finished voting, allow the next person to vote.
3. Keep track of how many votes each candidate receives.
4. At any point the official in charge can end the count by typing in the authorisation code "END"
5. On a single screen, print out the winner in a "high score table" format, with the winner at the top, The list of vote numbers for each candidate.
The total number of votes cast.

You can use either a menu system or free entry.

Validate all user entries before continuing, including checking the authorisation code.

The colorconsole library can be used in this case and the full code is shown below.

Screenshots:

```
C:\Program Files\Python38\python.exe

List of candidates for voter no 1

1) Ann Hathaway
2) Bill Shakespeare
3) Joan D'Ark
4) Robin Hood
5) Bill Gates
6) Administrator login

Type the number of your choice (1 to 6)>_

Type the number of your choice (1 to 6)>_
Try entering a number: 'Enter' does not work... retry in 2 secs...

Type the number of your choice (1 to 6)>_10
Try a number from 1 to 6... retry in 2 secs...
_

Type the number of your choice (1 to 6)>_ten
Try entering a number: ten is not a number retry in 2 secs...
_
```

```
C:\Program Files\Python38\python.exe

List of candidates for voter no 1

1) Ann Hathaway
2) Bill Shakespeare
3) Joan D'Ark
4) Robin Hood
5) Bill Gates
6) Administrator login

Type the number of your choice (1 to 6)>_2
Are you sure this is your final choice>_y_
```

```
C:\Program Files\Python38\python.exe

List of candidates for voter no 11

1) Ann Hathaway
2) Bill Shakespeare
3) Joan D'Ark
4) Robin Hood
5) Bill Gates
6) Administrator login

Type the number of your choice (1 to 6)>_6
Enter Password>_END_
```

```
C:\Program Files\Python38\python.exe

Election Results

Bill Shakespeare      5  votes
Robin Hood            2  votes
Ann Hathaway          2  votes
Bill Gates             1  votes
Joan D'Ark             0  votes

Total number of votes cast 10

Press Enter to quit
```

```

import ui

def populate(candidates):
    votes = {}
    for candidate in candidates:
        votes.update({candidate:0}) # votes["Ann Hathaway"] = 0
    return votes

def sort(dictionary):
    return {key: value for key, value in sorted(dictionary.items(), key = lambda item: item[1])}

def main():
    # ui.menu(style, title, prompt_end, options, fore_color = 'white', back_color = blackbg, align = "left", width = 0)
    ui.set_console(80, 25, "white", "black", False) # setup console size and colour
    voter_no = 1 # voter count for display purposes
    confirm = False # loop flag
    get_votes = True
    candidates = ['Ann Hathaway', 'Bill Shakespeare', "Joan D'Ark", 'Robin Hood', 'Bill Gates']
    votes = populate(candidates) # create dictionary of candidates and their votes
    candidates.append("~red~Administrator login") # add additional menu item

    while get_votes: # loop while admin has not entered 'END'
        title = f"List of candidates for voter no ~green~{voter_no}" # menu title
        while not confirm:
            choice, num_lines = ui.menu("d", title, '>_', candidates, 'yellow', 'bluebg')
            if choice == len(candidates) - 1: # admin login
                password = ui.get_string(num_lines, "Enter Password", ">_")
                if password == "END":
                    confirm = True
                else:
                    ui.display_message("Incorrect password, returning to menu...", False, True, 'magenta', 'blackbg', 2)
            else:
                confirm = ui.get_boolean(num_lines, "Are you sure this is your final choice", '>_')

            if choice != len(candidates) - 1: # admin login is the last menu item
                votes[candidates[choice]] += 1
                voter_no += 1
                confirm = False
            else:
                get_votes = False

    votes = sort(votes)
    text_lines = []
    for key, value in votes.items():
        text_lines.insert(0, f"{key.ljust(25)}{str(value).ljust(4)}votes")

    text_lines[0] = "~red~" + text_lines[0] # winner coloured red
    text_lines[1] = "~magenta~" + text_lines[1] # second coloured magenta
    # ui.draw_multi_line_box(style, text_lines, fore_color, back_color, text_color, text_back_color, box_align, text_align, width)
    ui.clear()
    num_lines = ui.draw_multi_line_box("s", "Election Results", 'cyan', 'blackbg', 'magenta', 'blackbg', 'centre', 'centre', 60)
    num_lines = num_lines + ui.draw_multi_line_box("s", text_lines, 'green', 'blackbg', 'yellow', 'blackbg', 'centre', 'left', 80)
    num_lines = num_lines + ui.draw_multi_line_box("s", f"Total number of votes cast ~red~{voter_no - 1}", 'blue', 'blackbg', 'cyan', 'blackbg',
'centre', 'left', 80)
    num_lines = num_lines + ui.add_lines(5, num_lines)
    num_lines = num_lines + ui.draw_line("d", 'white', 'redbg')
    ui.quit(True)

main()

# you can use num_lines += in C# and Python, but not in Lua, so not used in this example

```