CrowdANALYTIX

1. Take a number "N" from the user and let the user enter a set of numbers exactly equal to N, as "input_array". Form a list from the given set of array elements. With that list, write a program to print this list after removing all duplicate values with original order reversed.
    a. Create a class for performing the operations. Getting the input, printing outputs can be done outside the class.
    b. If any duplicates are found, raise a *user-defined* exception. Catch this exception from the main function and print "Duplicate found at index 1".
    c. Make sure that no matter what input is given the program doesn't throw any runtime Errors.
    d. You can get the input from stdin or you can use argparse. Bonus points for using argparse.

        Input 1:

            N = 5, input_array = [2,2,3,4,5]

        Output 1:

            Duplicate found at index 1

        Input 2:

            N = 5, input_array = [2,3,4,5]

        Output 2:

            [5,4,3,2]

2. Given a string of length S, reverse the whole string without reversing the individual words in it. Words are separated by hyphens.

    Input:

    The first line contains T denoting the number of test cases. T test cases follow. Each case contains a string S containing characters.

    Output:

    For each test case, in a new line, output a single line containing the reversed String.

    Example:

    Input:

    2
    jack-and-jill-went-up-the-hill
    tom-and-jerry

    Output:

    hill-the-up-went-jill-and-jack
    jerry-and-tom

3. Write a python script which accepts an image URL as input (command line argument), download it and get the following detail:
    a. Size of the original image file in human readable format (KiB, MiB, etc.)
    b. Resize the image to fit in a 250px x 250px window while preserving the aspect ratio and get the base64 representation of that image.
    c. Describe the logic to do the above operation, if you are using a readymade function from any library to achieve point b.
    d. Resolution of the original image in pixels (w x h) Eg: “1920x1080”

Input Example:

```
https://www.google.com/logos/doodles/2021/uefa-euro-2020-6753651837109267-l
.png
```

Output JSON:

```
{
    "thumbnail_base64": "encoded string",
    "thumbnail_path": "/home/user/test_thumb.jpg",
    "original_size": "size of image in human readable units",
    "thumbnail_size": "size of image in human readable units",
    "original_resolution": "resolution of image (w x h) in pixels",
    "thumbnail_resolution": "resolution of image (w x h) in pixels",
}
```

Please *validate the URL* and *the file received* to make sure it is a valid image before doing any processing on the image. If the URL is not accessible or if the file downloaded is not a valid image, please return appropriate error messages.

4. Read the csv file (interview_scent.csv) into python program and perform the following tasks:
    a. Find the total number of rows in the csv file, ignoring the rows where `prediction` is "None".
    b. Find the distinct values in the `scent_prediction` column of csv.
    c. Find the count of each distinct value appearing in the `scent_prediction` column of csv.
    d. Create a new csv file with columns “scent_value,count” and write the values from the above question in the new file.
    e. Write a simple regular expression to extract the quantity from each row in ounces and populate it in the `quantity_prediction` column along with other columns from the input file.

Note: If CSV is not accessible in above link, can request access to the CSV from your Google account and we will approve it. Do reach out if you are unable to do so.

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Notes:

- You can use any programming language of your choice for initial questions, however, Python is preferred.
- All questions and subtasks are optional, please try to solve as much as possible and also do reach out if you need more time to finish the tasks.
- Explain the rationale behind the steps you are doing. Write proper comments.
- Use a package management tool to manage dependencies.
- Code mustn't be plagiarized.
- Include instructions / versions / etc.
- Mind edge cases. Find bugs in your code.
- Code quality will be evaluated. Follow industry standards and if possible, mention what standards you are following.
- You can upload the solutions in any one of following method:
    - Google Drive and share a private link *or*
    - Reply to this email *or*
    - Upload them to a **private** GitLab.com repository and invite @CrowdANALYTIX or admin@crowdanalytix.com as a collaborator.
- Reply to this email once you have done that. Please mention the mode of submission as well.