

System test case - #2

Test case details

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Device: Desktop Computer, fast modern processor, Windows 11 Home v.23H2

Environment details:

- Most recent master branch of the project github
- most recent commit is
c72169bb6764e2ddba202fc4f6486a08fd74cae9
- Anaconda virtual environment used with development
- Python 3.12.1
- numpy 1.26.3
- pandas 2.1.4
- us 3.1.1

Test details

Test is a system test, running the whole model with specific parameters. For this test case we attempt to run the whole model using JHU state level data.

Parameters:

- Dataset: JHU Global
- END_DATE: 2021-07-07
- VAL_END_DATE: 2021-07-14
- level: nation

Test steps and results:

1. Run validation.py with the following arguments:
validation.py --END_DATE 2021-07-07 --VAL_END_DATE 2021-07-14 --dataset JHU --level nation
 - a. Result: Seemingly successful run of validation.py with the JHU global data. Runtime was just about 35 minutes. Resulting files found in their respective folders in *System test 2 \ Results_1*.
2. Run generate_predictions.py with the same arguments (prerequisite is that the files generated in step 1 exist).
 - a. Result: Exception after 8 minutes of runtime. Seemingly, the predictions were completed, but they could not be saved to a file because the program attempted to

save them to a nonexisting directory. Image of exception below and in *System test 2 \ Results_2*.

```
generate_predictions.py > ...
526     pred_data['Region'] = county
527     pred_data['State'] = state
528
529     # Reset index and rename "index" column to "Date".
530     pred_data=pred_data.reset_index().rename(columns={"index": "Date"})
531
532     # Add the prediction data to the frame list.
533     frame.append(pred_data[pred_data['Date']>datetime.strptime(PRED_START_DATE,"%Y-%m-%d")])
534
535     # Combine all dataframes from frame list to a single DataFrame.
536     result = pd.concat(frame)
537
538     # Create filename for result CSV.
539     save_name = pred_dir + "pred_" + args.level + "_END_DATE_" + args.END_DATE + "_PRED_START_DATE_" + PRED_START_DATE + ".csv"
540
541     # Convert result DataFrame to CSV file.
542     result.to_csv(save_name, index=False)
```

Exception has occurred: OSError X
Cannot save file into a non-existent directory: 'pred_results_world'
File "C:\Users\leetus\SWENGP\code\epidemic-model-of-COVID\code\generate_predictions.py", line 541, in <module>
 result.to_csv(save_name, index=False)
OSError: Cannot save file into a non-existent directory: 'pred_results_world'

3. Due to the nature of the exception being easily prevented, the missing directory was added to the codebase, and now the same test as before in step 2 will be redone.
Run generate_predictions.py with the same arguments again.
 - a. Result: generate_predictions.py has been successfully run with the given arguments.
Runtime was just about 8 minutes. Resulting files can be found in *System test 2 \ Results_3 *.

Test results

Test was quite successful. Missing directory was added to codebase, after which the model was successfully run. The generated data can be found from testing_reports \ System test 2 \. This means that as of the commit whose hash is mentioned in env details, the program is functional with JHU nation level data.