

Welcome to Data 61-failure prediction

User guide

Directory structure

Input files:

You must place the following input files in the correct folder, './data_clean_tools/raw_data '.

1. raw_data_file = './ data_clean_tools /raw_data/SP_WATPIPE.dbf
2. raw_failure_file = './ data_clean_tools /raw_data/ WS_Pipe_Incident_Match.xlsx'

Please see the sample files and prepare your input files according to the correct format.

Output files:

Prediction file will be created in './resulting_data/', for each failure type (burst, fitting, and combined).


Ex: 20 years prediction file for burst failure can be found in:

'./resulting_data/WesternWater_burst/20_years_pipe_failure_counts.csv'

How to run the tool

Step 1: Go to command line. Then change your directory by issuing the below command:

CD FOLDER_PATH\Data61_WesternWater

 Command Prompt

```
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\WEE053>cd C:\Dilusha\westernwater\Data61_WesternWater
C:\Dilusha\westernwater\Data61_WesternWater>
```

Step 2: Run the Docker image

`docker run --rm -it -v %cd%:/Data61_WesternWater:rw ww:01`

```
Select Command Prompt
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\WEE053>cd C:\Dilusha\westernwater\Data61_WesternWater
C:\Dilusha\westernwater\Data61_WesternWater>docker run --rm -it -v %cd%:/Data61_WesternWater:rw ww:01
```

This will prompt a question: "Have you replaced the raw data files (yes/no)?"

You have to provide a response: yes (or y), or no (or n).



If you have modified the raw data files, then you will have to provide: yes (or y). Then the tool will run from the beginning. Otherwise, if you entered no (or n), tool will generate the prediction file using the already trained model based on the existing raw data files.

```
C:\Dilusha\westernwater\Data61_WesternWater>docker run --rm -it -v %cd%:/Data61_WesternWater:rw ww:02
Program started...
Have you replaced the raw data files?
```

```
C:\Dilusha\westernwater\Data61_WesternWater>docker run --rm -it -v %cd%:/Data61_WesternWater:rw ww:02
Program started...
Have you replaced the raw data files?
n
20 years forecasting started for burst failure...
```

Step 3: Go to the folder: './resulting_data/', you can find the prediction file for each failure type.

Here, the prediction file: `20_years_pipe_failure_count.csv` shows the **failure likelihood** of each pipe for next 20 years.

PC > Local Disk (C:) > Dilusha > westernwater > Data61_WesternWater > resulting_data > WesternWater_burst			
Name	Date modified	Type	Size
 20_years_pipe_failure_count.csv	9/04/2018 2:25 PM	Microsoft Excel Com...	21,688 KB
 pipe_based_prediction_2017.csv	9/04/2018 12:03 PM	Microsoft Excel Com...	2,478 KB