

# Comply document

Given below are the results of the test cases:

Case 1: File name is incorrectly entered or the input file does not exist.

Observations in this test case are depicted below:

```
*****
*                               *
*   Open Channel Flow   *
*                               *
*****
- Using Manning's equation calculate the flow rate of an open channel for a range of materials & bed slopes

Error in opening file(inputFile.csv). Please make sure that this file is available
Error while getting data from the input file. Terminating the application
```

Case 2: The input file doesn't contain 5 lines.

Observations in this test case are depicted below:

```
*****
*                               *
*   Open Channel Flow   *
*                               *
*****
- Using Manning's equation calculate the flow rate of an open channel for a range of materials & bed slopes

inputFile.csv is not as per expectations. In this file, there should be five entries, one per line. Each line should consist of 2 comma separated values. The first value is the name of the material and the second value is its Manning roughness factor.
Error while getting data from the input file. Terminating the application
```

Case 3: The input file is not in the proper format.

Observations in this test case are depicted below:

```
*****
*                               *
*   Open Channel Flow   *
*                               *
*****
- Using Manning's equation calculate the flow rate of an open channel for a range of materials & bed slopes

inputFile.csv is not as per expectations. In this file, there should be five entries, one per line. Each line should consist of 2 comma separated values. The first value is the name of the material and the second value is its Manning roughness factor.
Error while getting data from the input file. Terminating the application
```

Case 4: Any of the values input by the user is negative.

Observations in this test case are depicted below:

```
*****
*                               *
*   Open Channel Flow   *
*                               *
*****
- Using Manning's equation calculate the flow rate of an open channel for a range of materials & bed slopes

Please enter the following channel properties:
    Width (in metre) -> 12
    Depth (in metre) -> -10

Error!! You entered an invalid value. Please enter a positive value as depth of the channel.
    Depth (in metre) -> 
```

## Verification of result

The flow rate calculated by the app was compared with the values calculated via hand(in testing.pdf).

Following inputs were given to the app:

Width = 10m, Depth = 12m, Rise = 1 and Run = 100

Contents of inputFile.csv:

Asphalt,0.016

Cast Iron,0.012

Concrete,0.011

Gravel,0.023

Natural channels,0.060

Given below is the matrix calculated by the app. The 2 values highlighted using the red box matched with our hand calculations.

|                  | * | Slope   |   |         |   |         |   |          |   |          |   |
|------------------|---|---------|---|---------|---|---------|---|----------|---|----------|---|
| Material         | * | 0.01    | * | 0.06    | * | 0.11    | * | 0.16     | * | 0.21     | * |
| Asphalt          | * | 1745.91 |   | 4276.59 |   | 5790.53 |   | 6983.64  |   | 8000.76  |   |
| Cast Iron        | * | 2327.88 |   | 5702.12 |   | 7720.70 |   | 9311.52  |   | 10667.69 |   |
| Concrete         | * | 2539.51 |   | 6220.49 |   | 8422.59 |   | 10158.02 |   | 11637.47 |   |
| Gravel           | * | 1214.55 |   | 2975.02 |   | 4028.19 |   | 4858.18  |   | 5565.75  |   |
| Natural channels | * | 465.58  |   | 1140.42 |   | 1544.14 |   | 1862.30  |   | 2133.54  |   |