



Michigan Tech

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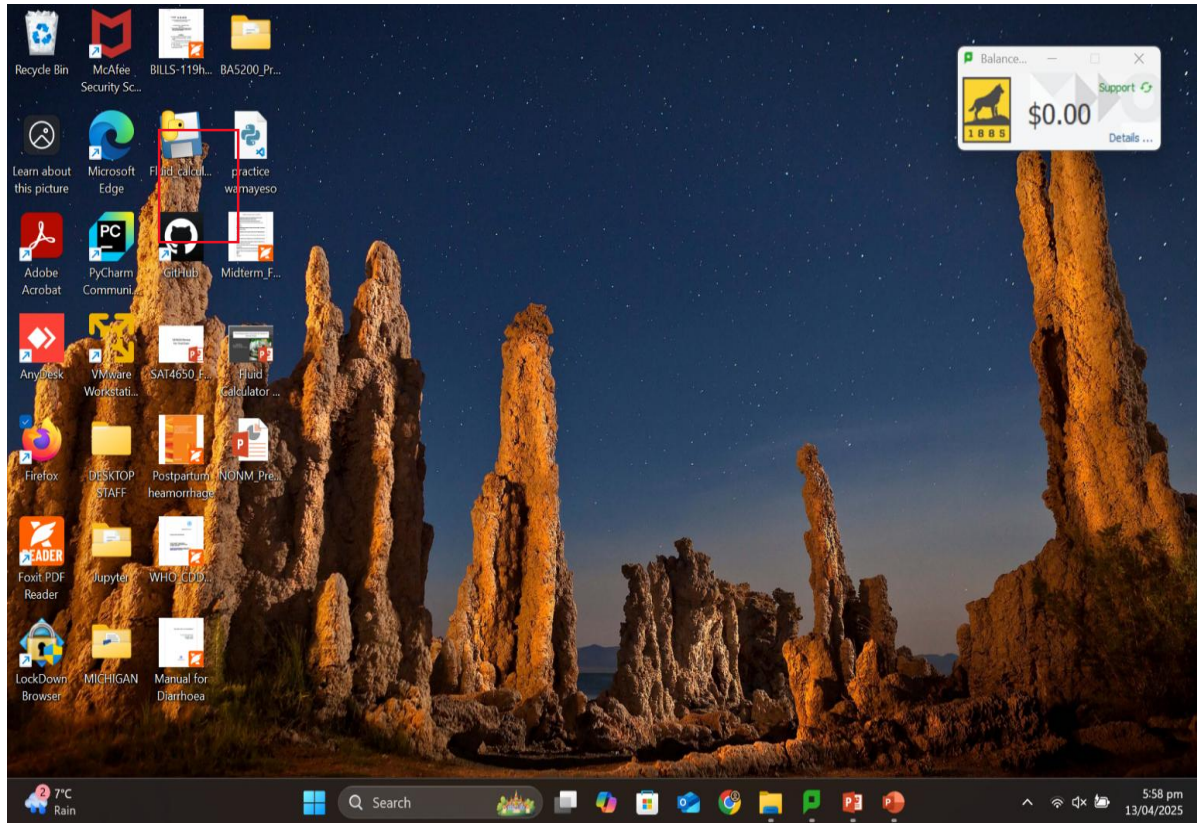
COURSE : APPLIED COMPUTING IN PYTHON

COURSE CODE : SAT 4650

ASSIGNMENT : Final Project Screenshots – Fluid Calculator for Nurses

DUE DATE : 04/22/2025

1.0. Screenshot 01 showing the Fluid Calculator as an .exe file on the desktop highlighted in the red box. This makes the calculator easily accessible to run from the desktop.



2.0. The following four (4) Screenshots show the Graphical User Interface displaying the widgets, labels, and a check button needed for the calculations. These tools are displaying the actual calculation, that is, the entry of various patients of details including their diverse age group with different severities of dehydration, and the actual output indicating the amount of fluid to be administered, the mode of administration and the period during which the fluids are to be administered based on the severity of the condition.

Advanced Fluid Calculator

Patient Name: Peter Mvuma

Age (years): 32

Weight (kg): 70

Date of Visit: 4/13/25

Dehydration Level: severe

☒ Is the patient in shock?

Calculate

Show Chart

Fluid Prescription Summary:

- Bolus Volume: 2100.0 mL
- Rehydration Volume: 7000.0 mL
- Total Fluids Required: 9100.0 mL
- Infusion Rate: 1166.67 mL/hour
- Duration: 6 hours

Balance... \$0.00

6°C Cloudy 9:26 pm 13/04/2025

Advanced Fluid Calculator

Patient Name: Jame Manyetere

Age (years): 64

Weight (kg): 82

Date of Visit: 4/13/25

Dehydration Level: moderate

☒ Is the patient in shock?

Calculate

Show Chart

Fluid Prescription Summary:

- Bolus Volume: 0 mL
- Rehydration Volume: 6150.0 mL
- Total Fluids Required: 6150.0 mL
- Infusion Rate: 1537.5 mL/hour
- Duration: 4 hours

Balance... \$0.00

5°C Cloudy 9:28 pm 13/04/2025

Advanced Fluid Calculator

Patient Name: Dzamezame

Age (years): 2

Weight (kg): 12

Date of Visit: 4/13/25

Dehydration Level: severe

☐ Is the patient in shock?

Calculate

Show Chart

Fluid Prescription Summary:

- Bolus Volume: 0 mL
- Rehydration Volume: 1200.0 mL
- Total Fluids Required: 1200.0 mL
- Infusion Rate: 200.0 mL/hour
- Duration: 6 hours

Balance... \$0.00

5°C Cloudy 9:29 pm 13/04/2025

Advanced Fluid Calculator

Patient Name: Dzamezame

Age (years): 2

Weight (kg): 12

Date of Visit: 4/13/25

Dehydration Level: severe

☒ Is the patient in shock?

Calculate

Show Chart

Fluid Prescription Summary:

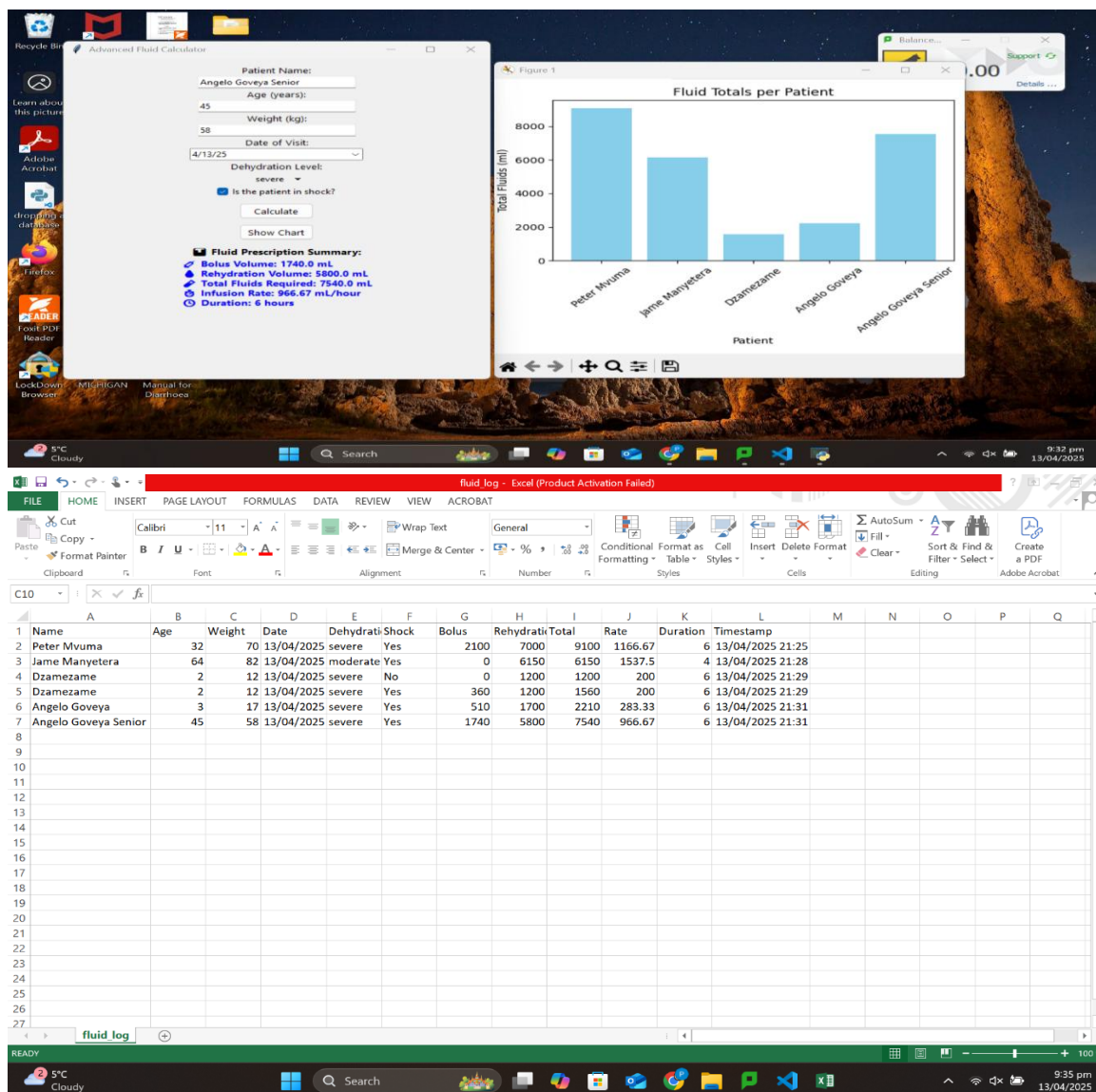
- Bolus Volume: 360.0 mL
- Rehydration Volume: 1200.0 mL
- Total Fluids Required: 1560.0 mL
- Infusion Rate: 200.0 mL/hour
- Duration: 6 hours

Balance... \$0.00

5°C Cloudy 9:29 pm 13/04/2025

3.0. In the screenshot below, there is an additional parameter where health workers, or better put, the users of the calculator, will be able to visualise quickly the trends of fluid total fluids given to a particular patient. This will be done by clicking show the chart and a bar chart will pop up as per the chart below showing total fluid in mls given to each patient.

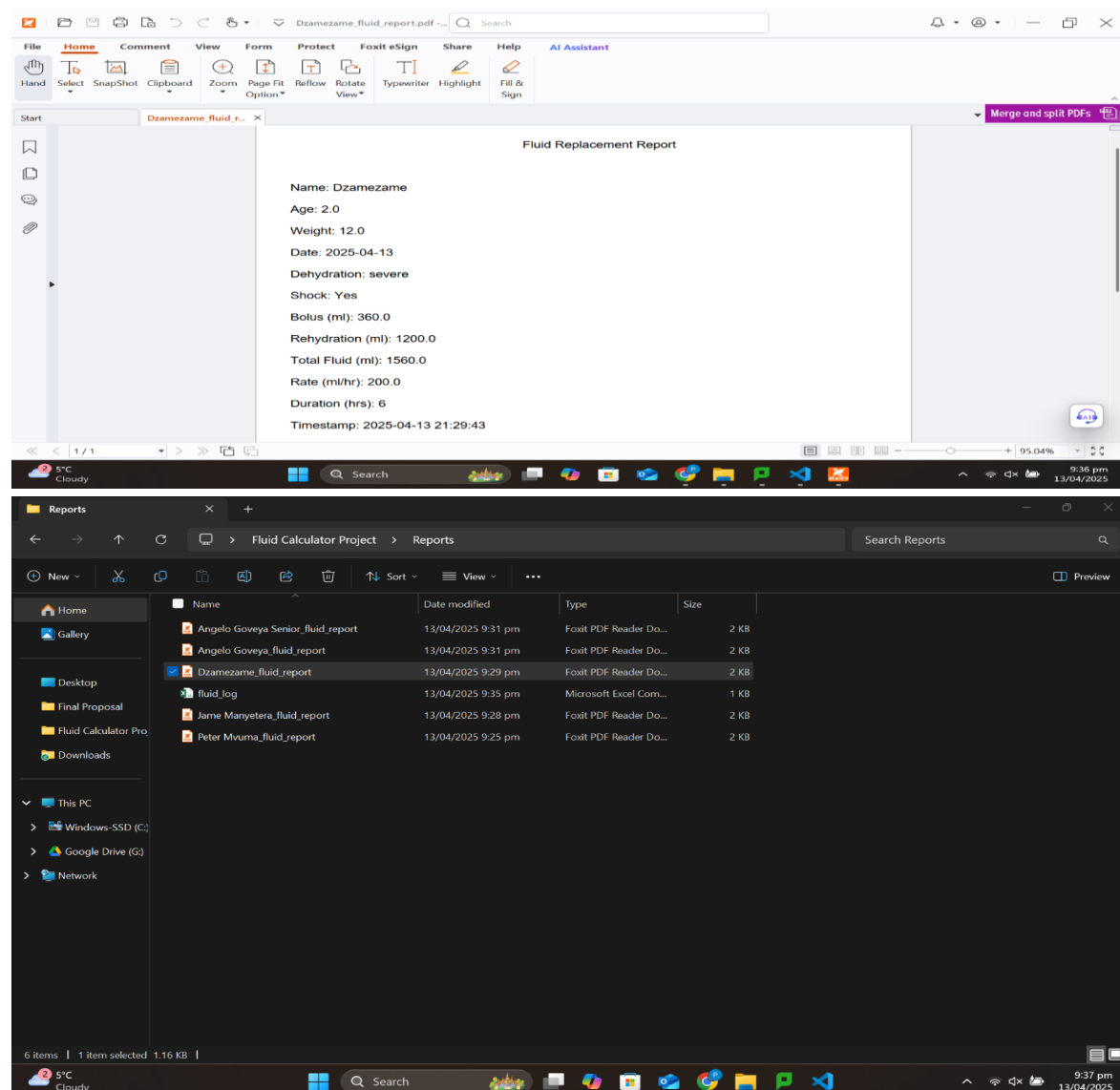
In addition, a CSV file screenshot has also been displayed below, showing the fluids logs for each patient. This will assist when there is a need for a detailed report or visualisation and storage of the patient file on a local computer through a CSV file. This serves as a secondary backup for all patient records and offers easy access to the patient's details.



4.0. The screenshots below gives extra view of a report that the calculator generates of an individual patient which is a shareable and printable PDF file. The PDF file contains the details of the individual patient and the type of treatment or fluid rehydration therapy done. This enhances accountability and even patients or anyone can have access to this data upon authorise without risking the privacy of other patients.

In which case, a file for only one of the patients is extracted accordingly.

Attached with this screenshot (PDF report for one patient) is a folder listing reports generated from the calculator, which is a list of PDF reports for each patient and the CSV file logs for all the patients.



5.0. Finally, I share below screenshots of the MySQL database showing the Fluid Calculator database created in which all patients entered are exported into the patients' table. This serves as a reliable and structured repository for storing patient records. It further enables secure, long-term storage of data and allows for efficient querying and retrieval of information.

MySQL also enforces data integrity and is scalable, making it suitable for future integration with hospital information systems. This enhances the calculator's capacity to support evidence-based care, reporting, and system-wide data analysis.

```

MySQL 8.0 Command Line Cli
Enter password: *****
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 46
Server version: 8.0.41 MySQL Community Server - GPL

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+-----+
| Database |
+-----+
| faculty_db |
| fluid_calculator |
| information_schema |
| mtu_employee |
| mysql |
| performance_schema |
| student_db |
| sys |
+-----+
8 rows in set (0.00 sec)

mysql> use fluid_calculator;
Database changed
mysql> SHOW TABLES;
+-----+
| Tables_in_fluid_calculator |
+-----+
| patients |
+-----+
1 row in set (0.00 sec)

mysql> SELECT * FROM patients;
+-----+
| id | name | age | weight | date_of_visit | dehydration_level | shock | bolus_volume | rehydration_volume | total_f |
| luid_volume | rate_per_hour | duration_hours | timestamp | | | | | | |
+-----+
| 1 | Peter Mvuma | 32 | 70 | 2025-04-13 | severe | 1 | 2100 | 7000 | |
| 9100 | 1166.67 | 6 | 2025-04-13 21:25:17 | | | | | |
| 2 | Jame Manyetera | 64 | 82 | 2025-04-13 | moderate | 1 | 0 | 6150 | |
| 6150 | 1537.5 | 4 | 2025-04-13 21:28:09 | | | | | |
| 3 | Dzamezame | 2 | 12 | 2025-04-13 | severe | 0 | 0 | 1200 | |
| 1200 | 200 | 6 | 2025-04-13 21:29:24 | | | | | |
| 4 | Dzamezame | 2 | 12 | 2025-04-13 | severe | 1 | 360 | 1200 | |
| 1560 | 200 | 6 | 2025-04-13 21:29:44 | | | | | |
| 5 | Angelo Goveya | 3 | 17 | 2025-04-13 | severe | 1 | 510 | 1700 | |
| 2210 | 283.33 | 6 | 2025-04-13 21:31:08 | | | | | |
| 6 | Angelo Goveya Senior | 45 | 58 | 2025-04-13 | severe | 1 | 1740 | 5800 | |
| 7540 | 966.67 | 6 | 2025-04-13 21:31:37 | | | | | |
+-----+
6 rows in set (0.00 sec)

mysql>

```