Data integrity, verification and validation

A2 Computer science

Due date: Tuesday, December 11, 2025

Goal of the Assignment

After this assignment, you should be able to:

- Describe how data verification and data validation help maintain data integrity,
- Describe and use methods of data validation,
- Describe and use methods of data verification, during data entry and transmission.
- Implement data validation and verification techniques in a python program.

1 Vocabulary

Create physical, pairs of card for each of the following vocabulary terms. One card of the pair should have the term, and the other card should have the definition. We will play memory games with these cards in class.

1. Data integrity
2. Data validation
3. Data verification
4. Range check
5. Format check
6. Length check
7. Presence check
8. Existence check
9. Limit check
10. Check digit
11. Parity check
12. Checksum
13. Visual verification
14. Double entry

2 Match scenario to definition

Match each of the following scenarios to the correct data validation or verification technique from the vocabulary list above. Write the number of the correct technique next to the scenario.

a. A user is required to enter their date of birth as DD/MM/YYYY.

b. A system checks that a product code entered by a user exists in the database before processing an order.

c. A form requires users to enter their phone number, which must be exactly 10 digits long.

d. A user is asked to re-enter their email address to confirm it matches the first entry.

e. A system verifies that a credit card number is valid using.

f. A temperature input field only accepts values between -50 and 150 degrees Celsius.

g. A parity bit is added to a data packet to detect errors during transmission.

3 Implementation

- Create a new folder for this assignment.
- Download the provided python template file named `techniques.py` and the test file named `testing.py` into this folder.
- Implement your solutions in `techniques.py`.
- If you need to create extra functions to help with your implementation, do so. you're not limited to only using the functions provided in the template.
- You will submit your completed python program via google classroom before the due date.
- This is what's going to help your remember the most, so take your time and do it well. Don't waste everyone's time, and mostly your own, by asking AI or by copying code found online.
- Pay close attention to the signature of each function provided in the template, as your implementation will be tested automatically.
- You can check your implementation by running the provided test program. You should do so after completing each function to ensure it works correctly before moving on to the next one.

Good luck and have fun!