**Isaac Computer Science Student Activity Booklet**

Robust Programs

**Activity 1:** Authentication Challenge

**Trinket Link:** <https://trinket.io/python3/ffab99f52cf9>

valid\_usernames = ["Rachel", "Louise", "Laura", "Tom", "Adam", "Lewis", “Emma”]

username = input("Enter your username")

while username not in valid\_usernames:

print("Entry denied")

username = input("Enter your username")

print("Entry granted")

1. Predict what you think will happen, run the code and note whether your prediction was correct.

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| **Predict** |
| * When this code is run, the program will prompt the user to enter a username. After the user enters a username, the program will enter a while loop. * If the entered username is not found in the valid\_usernames, the program will print "Entry denied" and prompt the user to enter their username again. * If the entered username is found in the valid\_usernames array, the program will print "Entry granted" and exit the while loop. * The code will continue to prompt the user for their username until a valid username is entered. |

1. Modify the code so that Emma is now a valid username and adjust the output so that all valid users are greeted with their name e.g. “Emma, entry granted”.

valid\_usernames = ["Rachel", "Louise", "Laura", "Tom", "Adam", "Lewis", "Emma"]

username = input("Enter your username: ")

while username not in valid\_usernames:

print("Entry denied")

username = input("Enter your username: ")

print(username + ", entry granted")

**Activity 2:** **Spot the Errors Challenge**

**Trinket: <https://trinket.io/python3/7d9e50564e07>**

Below is a faulty Python code snippet meant to validate user input for age. Your task is to identify the errors and fix the code to make it robust.

def validate\_age():

    age = input("Enter your age: ")

    if age > 0 and age < 120:

        print("Valid age")

    else

        print("Invalid input")

**What you need to do:**

1. Identify errors in the code:
   * Syntax mistakes.
   * Logical errors that prevent the program from working correctly.
2. Fix the code so it:
   * Validates that the input is a positive integer.
   * Prevents program crashes if invalid input is entered (e.g. a string).

**Hints:**

* + Use input validation to check if the input is a digit.
  + Fix the syntax error in the if statement.

**Example Input and Output:**

* **Input:** 25  
  **Output:** Valid age
* **Input:** -5  
  **Output:** Invalid input
* **Input:** hello  
  **Output:** Invalid input

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| Copy and paste your python solution or add a screenshot here.  def validate\_age():      age = input("Enter your age: ")      if age.isdigit():  # Check if the input is a positive integer          age = int(age)          if 0 < age < 120:  # Check if the age is within a valid range              print("Valid age")          else:              print("Invalid input: Age must be between 1 and 119.")      else:          print("Invalid input: Please enter a valid positive integer.")  validate\_age() |