**Easy Questions**

1. **What will happen if you attempt to run the try\_login\_and\_connection function in main.py without providing both a username and a password?**
   * A. The function will automatically use default credentials.
   * B. It will prompt the user for credentials if they are not provided.
   * C. The program will crash immediately with an error.
   * D. It will connect with an empty username and password.
2. **In utilities.py, what is the purpose of the \_read\_template\_image method in the \_local\_variables class?**
   * A. It loads and resizes a template image for comparison purposes.
   * B. It creates a new template image from raw data.
   * C. It applies filters to modify the template image.
   * D. It converts the template image to grayscale without resizing.

**Medium Questions**

1. **In xnat\_experiment\_data.py, what is the main reason the ExperimentData class cannot be instantiated directly?**
   * A. It lacks required attributes like schema\_prefix\_str.
   * B. The class methods like \_populate\_df and \_check\_session\_validity are not implemented.
   * C. It is missing connection details for the XNAT server.
   * D. It does not have an appropriate \_\_init\_\_ constructor.
2. **In xnat\_scan\_data.py, why might the is\_similar\_to\_template\_image method fail during execution?**
   * A. If the image being compared is in MP4 format.
   * B. If the template image is corrupted or unreadable.
   * C. If the threshold value passed is less than 0.5.
   * D. If the cv2.matchTemplate function returns None.

**Hard Questions**

1. **What is a potential issue with the ORDataIntakeForm class in xnat\_resource\_data.py when the construct\_digital\_file method is set to write\_file=True?**
   * A. It does not check if the save directory exists.
   * B. It might overwrite an existing file without warning.
   * C. It fails silently if the input data is incomplete.
   * D. It does not validate JSON formatting before saving.
2. **In utilities.py, the \_set\_local\_variables method defines several paths and URLs. What might happen if the tempfile.gettempdir() function fails to return a valid directory?**
   * A. The program will crash with an AttributeError.
   * B. Temporary files will be written to the current working directory instead.
   * C. The temporary directory creation process will raise an OSError.
   * D. The \_local\_variables class will return None for all directory paths.

### **Answers and Explanations**

1. **Answer: B**  
   **Explanation:** The try\_login\_and\_connection function is designed to prompt the user for credentials if none are provided, ensuring the process continues securely.
2. **Answer: A**  
   **Explanation:** The \_read\_template\_image method loads and resizes the image to ensure it is in a standard format for template matching tasks, which is critical for accurate comparisons.
3. **Answer: B**  
   **Explanation:** The ExperimentData class is abstract, with methods like \_populate\_df and \_check\_session\_validity left unimplemented, requiring subclassing for proper functionality.
4. **Answer: A**  
   **Explanation:** The is\_similar\_to\_template\_image method is designed for static images, and attempting to compare an MP4 video file would result in a type mismatch or assertion error.
5. **Answer: B**  
   **Explanation:** The construct\_digital\_file method does not check for the existence of a file before overwriting, which could result in unintended data loss.
6. **Answer: C**  
   **Explanation:** If tempfile.gettempdir() fails to return a valid directory, it raises an OSError, preventing the program from continuing as temporary paths are essential for storage.