**Maintenance Guide**

**Objective**: To guide the maintainer on how to continue using the project's outputs after its completion, including applying changes, updates, and improvements to ensure the system's continued operation and usability.

**1. System Environment**

**Required Infrastructure:**

* **Software**: Python (version 3.x), required libraries (e.g., NumPy, SciPy, pandas, matplotlib, BLAST+, FastDTW).
* **Hardware**: A computer with an operating system that supports Python, sufficient disk space, and adequate RAM for data processing.

**Installation Instructions for Project-Specific Software:**

1. **Install Python**:
   * Download the appropriate version of Python from the [Python website](https://www.python.org/downloads/).
   * Follow the installation instructions provided on the website.
2. **Install Required Libraries**:
   * Open the command line or terminal and install the necessary libraries using pip:
3. **Install BLAST+**:
   * Download and install BLAST+ from the [NCBI website](https://ftp.ncbi.nlm.nih.gov/blast/executables/blast+/).
   * Add the installation path to the system PATH.
4. **Install FastDTW**:
   * Install FastDTW using pip:

**2. Maintenance and Support Instructions**

**Applying Changes and Updates**:

* **Changes**: For modifying existing code or adding new features, ensure that any new dependencies are installed and that the changes are thoroughly tested.
* **Updates**: Regularly check for updates to Python libraries and the BLAST+ tool. Update these components as necessary and verify compatibility with your system.

**Troubleshooting**:

* **Common Issues**: Document common issues and their solutions. Ensure that error messages are clear and provide guidance on resolving problems.
* **Support**: Provide contact information or support channels for users who encounter issues that cannot be resolved through the documentation.

**Backup and Recovery**:

* **Backup**: Regularly back up the system and data to prevent loss. Include instructions for backing up and restoring data.
* **Recovery**: Outline procedures for recovering from system failures or data corruption, including steps to restore from backups.

**3. Configurable Parameters**

**BLAST Code**:

* **Time Segments**: You can adjust the time segments used in the BLAST analysis. Modify the script settings to specify different time segments as needed.
* **Overlap Percentage**: The overlap percentage for time segments can also be changed. Update the script to reflect the desired overlap.
* **Results File Name**: Specify the results file name by editing the appropriate section in the script.

**Order-Preserving Matching Code**:

* **Downsampling Rate**: Adjust the downsampling rate by modifying the script. This controls how frequently data points are sampled.
* **Results Name**: Change the name of the results file by updating the relevant variable or parameter in the script.