# 🛠️ BGSIT Hackathon - Complete Setup Guide

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## 🐧 WSL Installation and Setup

### What is WSL?

Windows Subsystem for Linux (WSL) allows you to run a Linux environment directly on Windows without the overhead of a traditional virtual machine.

### Step 1: Enable WSL Feature

1. **Open PowerShell as Administrator**
   * Press Win + X and select “Windows PowerShell (Admin)” or “Terminal (Admin)”
2. **Run the following command:**

* wsl --install

1. **If the above doesn’t work, try manual installation:**

* dism.exe /online /enable-feature /featurename:Microsoft-Windows-Subsystem-Linux /all /norestart  
  dism.exe /online /enable-feature /featurename:VirtualMachinePlatform /all /norestart

1. **Restart your computer**

### Step 2: Install Ubuntu 22.04 LTS

1. **Open Microsoft Store**
2. **Search for “Ubuntu 22.04.3 LTS”**
3. **Click “Install”**
4. **Wait for installation to complete**

### Step 3: Initial Ubuntu Setup

1. **Launch Ubuntu from Start Menu**
2. **Create a username and password when prompted**

* # You'll see something like this:  
  Installing, this may take a few minutes...  
  Please create a default UNIX user account. The username does not need to match your Windows username.  
  For more information visit: https://aka.ms/wslusers  
  Enter new UNIX username: your\_username  
  New password:   
  Retype new password:

1. **Update the system:**

* sudo apt update && sudo apt upgrade -y

### Step 4: WSL Configuration

1. **Set WSL 2 as default (if not already):**

* # Run this in PowerShell (as Admin)  
  wsl --set-default-version 2

1. **Verify WSL installation:**

* # In Ubuntu terminal  
  lsb\_release -a

## 🔧 Git Installation and Configuration

### Step 1: Install Git in WSL

# Update package list  
sudo apt update  
  
# Install Git  
sudo apt install git -y  
  
# Verify installation  
git --version

### Step 2: Configure Git

# Set your name (use your real name)  
git config --global user.name "Your Full Name"  
  
# Set your email (use your GitHub email)  
git config --global user.email "your.email@example.com"  
  
# Set default branch name  
git config --global init.defaultBranch main  
  
# Verify configuration  
git config --list

### Step 3: Generate SSH Key (Optional but Recommended)

# Generate SSH key  
ssh-keygen -t ed25519 -C "your.email@example.com"  
  
# Press Enter to accept default file location  
# Enter a passphrase (optional)  
  
# Start SSH agent  
eval "$(ssh-agent -s)"  
  
# Add SSH key to agent  
ssh-add ~/.ssh/id\_ed25519  
  
# Display public key to copy  
cat ~/.ssh/id\_ed25519.pub

### Step 4: Add SSH Key to GitHub

1. **Copy the SSH key output from the previous step**
2. **Go to GitHub.com → Settings → SSH and GPG keys**
3. **Click “New SSH key”**
4. **Paste your public key and save**

## 🐍 Python and Jupyter Setup

### Step 1: Install Python

# Install Python 3 and pip  
sudo apt install python3 python3-pip -y  
  
# Install python-venv for virtual environments  
sudo apt install python3-venv -y  
  
# Verify installation  
python3 --version  
pip3 --version

### Step 2: Create Virtual Environment

# Navigate to your project directory  
cd ~  
  
# Create virtual environment  
python3 -m venv hackathon\_env  
  
# Activate virtual environment  
source hackathon\_env/bin/activate  
  
# Your prompt should now show (hackathon\_env)

### Step 3: Install Required Packages

# Make sure virtual environment is activated  
source hackathon\_env/bin/activate  
  
# Install essential packages  
pip install --upgrade pip  
pip install jupyter pandas numpy matplotlib seaborn scikit-learn  
  
# Install additional ML libraries  
pip install xgboost lightgbm plotly  
  
# Install other useful packages  
pip install ipykernel ipywidgets  
  
# Verify Jupyter installation  
jupyter --version

### Step 4: Configure Jupyter

# Add virtual environment to Jupyter  
python -m ipykernel install --user --name=hackathon\_env --display-name="Python (Hackathon)"  
  
# Generate Jupyter config (optional)  
jupyter notebook --generate-config

## 🍴 Repository Fork and Clone

### Step 1: Fork the Repository

1. **Go to the main repository:**

* https://github.com/Chethanpatel/BGSIT\_Hackathon

1. **Click the “Fork” button** in the top-right corner
2. **Select your GitHub account** as the destination
3. **Wait for the fork to complete**

### Step 2: Clone Your Fork

# Navigate to your desired directory  
cd ~  
  
# Clone your forked repository (replace YOUR\_USERNAME)  
git clone https://github.com/YOUR\_USERNAME/BGSIT\_Hackathon.git  
  
# Navigate into the repository  
cd BGSIT\_Hackathon  
  
# Verify the clone  
ls -la

### Step 3: Set Up Remote Upstream

# Add the original repository as upstream  
git remote add upstream https://github.com/Chethanpatel/BGSIT\_Hackathon.git  
  
# Verify remotes  
git remote -v

### Step 4: Start Working

# Activate your virtual environment  
source ~/hackathon\_env/bin/activate  
  
# Start Jupyter Notebook  
jupyter notebook  
  
# Your browser should open with Jupyter interface

## 🔍 Troubleshooting

### Common WSL Issues

**Issue: WSL command not found**

# Enable WSL feature manually  
Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Windows-Subsystem-Linux

**Issue: Ubuntu won’t start**

# Reset WSL  
wsl --shutdown  
wsl --unregister Ubuntu-22.04  
# Reinstall Ubuntu from Microsoft Store

**Issue: File permission problems**

# Fix file permissions  
sudo chown -R $USER:$USER /path/to/your/files

### Common Git Issues

**Issue: Permission denied (publickey)**

# Check SSH connection  
ssh -T git@github.com  
  
# If fails, add SSH key to agent  
ssh-add ~/.ssh/id\_ed25519

**Issue: Git credentials**

# Cache credentials for HTTPS  
git config --global credential.helper cache  
  
# Or use SSH instead of HTTPS  
git remote set-url origin git@github.com:YOUR\_USERNAME/BGSIT\_Hackathon.git

### Common Python Issues

**Issue: pip install fails**

# Update pip  
python -m pip install --upgrade pip  
  
# Install with user flag  
pip install --user package\_name

**Issue: Jupyter not starting**

# Check if installed in virtual environment  
which jupyter  
  
# Reinstall if needed  
pip install --force-reinstall jupyter

**Issue: Module not found in Jupyter**

# Make sure you're using the correct kernel  
# In Jupyter: Kernel → Change Kernel → Python (Hackathon)  
  
# Or reinstall kernel  
python -m ipykernel install --user --name=hackathon\_env --display-name="Python (Hackathon)"

## 📺 Video Tutorials

### WSL Installation

* [Microsoft Official WSL Guide](https://docs.microsoft.com/en-us/windows/wsl/install)
* [WSL 2 Installation Tutorial](https://www.youtube.com/results?search_query=wsl+2+installation+windows+11)

### Git Setup

* [Git Basics Tutorial](https://www.youtube.com/results?search_query=git+tutorial+for+beginners)
* [GitHub SSH Setup](https://www.youtube.com/results?search_query=github+ssh+key+setup)

### Python & Jupyter

* [Python Virtual Environment](https://www.youtube.com/results?search_query=python+virtual+environment+tutorial)
* [Jupyter Notebook Basics](https://www.youtube.com/results?search_query=jupyter+notebook+tutorial)

## ✅ Quick Verification Checklist

Before the hackathon, make sure you can:

* ☐ Open WSL Ubuntu terminal
* ☐ Run git --version successfully
* ☐ Run python3 --version successfully
* ☐ Activate virtual environment
* ☐ Start Jupyter Notebook
* ☐ Access your forked repository
* ☐ Create and run a simple Python cell in Jupyter

## 🆘 Getting Help

If you encounter issues:

1. **Search for error messages** online
2. **Check Stack Overflow** for similar problems
3. **Ask on GitHub Discussions** in your forked repository
4. **Contact the organizing team** for hackathon-specific issues

## 🎯 You’re Ready!

Once you’ve completed this setup, you should have: - ✅ WSL with Ubuntu 22.04 LTS running - ✅ Git installed and configured - ✅ Python environment set up - ✅ Jupyter Notebook working - ✅ Your forked repository cloned and ready

**Good luck with the BGSIT Hackathon! 🚀**

*Last Updated: October 24, 2025* *For BGSIT CodeFest Machine Learning Challenge 2025*