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1. **Installation of windows system**

In the installation of Windows 11 I followed the following steps to install it:

Step 1: Checkpng System Requirements and backing up storage

Before installing the windows I checked the system requirements for installing windows 11 to check if it was compatible with my laptop. After that I backed up my device storage to an external device

Step 2: Download the 'create Windows 11 installation'

I went to the downloading site for windows 11 and downloaded the create Windows 11 installation. After that i followed the onscreen instructions

Step 3: Create a Bootable USB Drive

After following the instructions to create a bootable USB drive. I inserted the USB drive into the my PC.

Step 4: Install Windows 11 from the Bootable USB Drive

I restarted my PC and booted from the USB drive. I configured my booting order in my BIOS then when prompted i pressed any key to boot from the USB drive.I choose my language, time, and keyboard preference and then clicked "Next.". Next i clicked "Install now.". After that I entered my product key and accepted the license terms and clicked "Next.". Next I choose "Custom: Install Windows only (advanced)" for a clean installation selected the partition where I wanted to install Windows 11 and clicked "Next." The installation process then began.

Step 4: Completing the Installation

1.I followed the on-screen instructions to complete the installation process, including setting up my user account and preferences.

2. Once setup was complete, Windows 11 will booted up to the desktop.

Step 5: Installing Drivers and Updates

After installation I made sure I;

1. Installed the latest drivers for my hardware from the manufacturer's website.

2. Run Windows Update to download and install the latest updates and security patches.

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2. Installation of visual studios code

I followed the following steps to install visual studio code;

Step 1: Download Visual Studio Installer

1. I opened my web browser and opened the Visual Studio download page.

2. I clicked Visual Studio Community edition

3. I clicked the free download button under the desired edition to download the Visual Studio Installer.

Step 2: Run the Installer

1. I located the visual studio code.exe in my downloads folder.

2. clicked it to run the installer.

3. I then clicked 'YES' for User Account Control to allow the installer to make changes to my device.

Step 3: Select Workloads

1. After the Visual Studio Installer window opened. I saw a list of workloads that can be installed.

2.I clicked desktop development with C++ and customized it.

Step 4: Install Selected Workloads

1. After selecting the desired workload I clicked the "Install" button.

2. The installer will began downloading and installing the selected components and waited for the installation to complete.

Step 5: Launch Visual Studio

1. Once the installation was complete, I clicked the "Launch" button** in the installer window.

2. I choose my development settings and selected the default development environment and keyboard layout that suited my needs.

4. Choose a dark color theme.

5. Lastly, I Clicked "Start Visual Studio" to open the main application.

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3. SETTING UP A VERSION CONTROL SYSTEM

detailed step-by-step guideline to installing Git, configuring it, creating a GitHub account, and initializing a Git repository for my project on Windows:

Step 1: Installing Git on Windows

1. I went to git download page and downloaded Git for Windows.

2. Run the Installer:

I located the downloaded installer file in my downloads folder. Double-clicked the installer file to run it. I followed the installation steps, selected the components I wanted to install, choose the default editor used by Git which is Vim, adjusted my PATH environment, choose the HTTPS transport backend.

- Configured the line ending conversions which was recommended ; "Checkout Windows-style, commit Unix-style line endings").

- Selected the terminal emulator to use with Git Bash (used the default MinTTY).

- Choose the default behavior of `git pull` (used default option).

- Select the credential helper (Git Credential Manager).

- Enabled file system caching and other experimental options as desired (choose default).

3. Completing the Installation

- Clicked "Install" and waited for the installation process to complete.

- Clicked "Finish" once the installation was done.

2. Configuring Git

1. Open Git Bash:

Went to start menu and searched for "Git Bash" and opened the Git Bash application.

2. Set Your Username and Email:

- Configure my Git username and email

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3. Verified my Configuration:

- Checked my configuration to ensure the username and email are set correctly.

3: Creating a GitHub Account

1. Opened my web browser and went to GitHub

2. Clicked on the "Sign up" button. Filled in the required details (username, email, password) and follow the on-screen instructions to complete the account creation process. Verified my email address as required by GitHub.

4: Initializing a Git Repository and Making my first Commit

1. Created a New Directory for Your Project:

- Opened Git Bash and navigated to the location where I wanted to create my project.

```
cd /c/Users/YourUsername/Documents
```

- Created a new directory for my project and navigate into it.

```
mkdir myproject
cd myproject
```

2. Initialize a New Git Repository:

- Initialized a new Git repository in my project directory

```
git init
```

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3. Create a README File:

- Created a `README.md` file and added some initial content.

```
echo "# My Project" > README.md
```

4. Stage the File

- Added the `README.md` file to the staging area

```
git add README.md
```

5. Making my First Commit:

- Commit the staged file with a commit message.

```
git commit -m "Initial commit with README.md"
```

5: Push to GitHub

1. Created a New Repository on GitHub

- Went to my GitHub account and clicked on the "+" icon at the top right, then select "New repository".

- Filled in the repository name, description and choose the visibility

- Clicked "Create repository".

2. Linked my Local Repository to GitHub:

- Followed the instructions provided by GitHub to push my existing repository from the command line. They should look something like this:

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```
# Stage the changes
git add example.txt

# Commit the changes
git commit -m "Add example.txt with new content"

# Add the remote repository (if not already added)
git remote add origin https://github.com/yourusername/yourrepository.git

# Push the changes to the remote repository
git push origin main  # or `git push origin master` if your default bran
```

4.INSTALLING NECESSARY PROGRAMMING LANGUAGES

How to install Python on Windows i followed these steps:

1. I open a web browser and head to the official Python website .

2. On the homepage, click on the big "Download" button in the top right corner.

3. On the download page I choose the windows version to download for python

4. Once I had selected the appropriate version, I clicked on the download button to start the download process.

5. Once the download was complete, I opened the installer forpython in the downloads.

6. I double-clicked on the installation file to begin the installation process. This opened the installation wizard.

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7. In the installation wizard, I was prompted to choose the installation location for Python. By default, it installed in the "Program Files" directory

8. Next, added Python to your system's PATH. This allowed me to access the Python interpreter from the command line or terminal.

9. Once I had made my selection,I clicked on the "Install" button to begin the installation process.

10. Once the installation is complete, i verified the installation by opening gitb bash and typing `(python --version)`

5.INSTALLING PACKAGE MANAGER.

How to install `pip (python)`

1. I opened Git Bash by right-clicking on the Start menu and and by searching for “Git Bash” in the Windows search bar.
2. I typed the following:

```
python -m ensurepip
```

This command will check if `pip` is installed and, if not, install it.

3. Once the installation was complete, i verifified the installation by opening a new Git Bash window and typing `pip --version`

6.CONFIGURING DATABASE(MYSQL)

How to download and install MySQL

1. **Download MySQL Installer:**

I visited the MySQL downloads page at mysql.com and selected the MySQL Community Server edition for Windows and choose the "MySQL Installer for Windows" option.

2. **Run the Installer:**

Once the installer file (.exe) is downloaded, double-clicked it to launch the installation wizard.

3. **Choose Setup Type:**

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On the "Choosing a Setup Type" screen, i selected "Custom" to configure which MySQL products and features to install. Clicked "Next".

4. **Select Products and Features:**

- The "Select Products and Features" screen allowed me to choose the MySQL products and features i wanted to install.

- Common components included were:

    - MySQL Server (mandatory for database operations)
    - MySQL Workbench (optional, graphical tool for database management)
    - MySQL Shell (optional, command-line tool for MySQL)
    - Connector/ODBC (optional, for connecting MySQL to applications using ODBC)
    - Connector/J (optional, JDBC driver for connecting Java applications to MySQL)

- I selected all the components and clicked "Next".

5. **Installation Configuration:**

- I configured installation options such as the installation directory, data directory, and service name. I also set the root password here.

And clicked "Next" after configuring the options.

6. **Configure MySQL Server:**

- On the "Configure MySQL Server" screen, i specified additional settings like port number, networking options, and authentication method.

- I adjusted these settings as per my requirements and clicked "Next".

7. **Execute Installation:**

After this I clicked "Execute" to begin the installation process.

8. **Installation Progress:**

The installer proceed to download and install the selected MySQL components based on my custom settings.

This process may take a few minutes depending on your system and selected components.

9. **Completion:**

- Once the installation was complete, I saw a "Complete" status. Clicked "Next" to finish the installation wizard.

10. **Verify Installation:**

To verify MySQL installation, I opened git bash and typed:this code(`mysql -u root -p`)

Entered the root password i set during installation and MySQL connected without errors.

8. EXPLORING EXTENTIONS AND PLUG IN

How to explore and utilize extensions in VS Code to improve development workflow:

1. Accessing Extensions

1. **Opened VS Code**: Launch Visual Studio Code on my machine.
2. **Extensions View**: Click on the Extensions icon.
3. **Search for Extensions**: Use the search bar in the Extensions view to find extensions based on my needs.

2. Extensions for VS Code

Here are some popular extensions that can enhance your development experience:

- **Python**: Provides rich support for the Python language (including debugging).

  Install by searching for "Python" and selecting the extension by Microsoft.

- **C/C++**: Provides support for C and C++ development.

  Install by searching for "C/C++" and selecting the extension by Microsoft

- **Docker**: Provides tools to build, manage, and deploy Docker containers.

  Install by searching for "Docker"

- **GitLens**: Supercharges the built-in Git capabilities of VS Code.

  Install by searching for "GitLens".

- **Material Icon Theme**: Adds a set of icons to make file types easily identifiable.

  Install by searching for "Material Icon Theme".

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