**Question 1**

Virtual Machine and OS Configuration

1.1) I created a virtual machine using the virtualization software, VirtualBox.

1. Step 1: By allocating disk space I assigned a partition of 25GB for the Ubuntu installation during the virtual machine setup.

Step 2: To create a user, I set the username to **“Zimele”** which therefore became the administrator username.

Step 3: I had to set the computer name to **“XUbuntu”**.

Step 4: I set up the administrator password to **“L1n@x2000”**.

1. I set the base memory to 2MB and the CPU processors to 2.
2. For the second virtual machine I allocated disk space assigned to a partition of 25GB for the Ubuntu installation during the virtual machine setup.
3. To create a user, I set the username to **“Christiano Ronaldo”** which therefore became the administrator username.
4. I had to set the computer name to **“XUbuntu,”** I then did a setup for the administrator password to **“L1n@x2000”**.

1.2)

* First, I opened the terminal application then I navigated to the home directory by using the command name of **“cd.”**
* I created a subdirectory which is called “WordCup2022” the command used is **“mkdir WordCup2022”**.
* I then changed the directory to a new directory by using the command  **“cd WorldCup2022”**.

1.3)

* First. I chose to use the nano text editor and I opened the editor by using the command **“nano.”**
* Once the editor had opened, I entered the following names but on each separate lines; the names are Russia, Uruguay, Egypt, Saudi Arabia, Iran, Portugal, Spain, and Morocco.
* I saved the text file and named it “GroupAandB” I used the command **“Ctrl + X.”**

1.4) I created a new file called GroupAandB2.

* To sort the file in alphabetical order, first I typed the command **“ls”** in the worldcup2022 directory.
* Then I typed **“cat GroupAandB.text** which showed me the list of countries which are in the file.
* I sorted the file by using the command **“sort GroupAandB > GroupAandB2”**.

1.5)

* Step 1: I copied the file to the /tmp directory using the command  **“cd /tmp”**.
* Step 2: I then confirmed that the file is in the /tmp directory by using the command **“ls”**.
* Step 3: I changed back to the WorldCup2022 directory using the command  **“cd /WorldCup2022”**.
* Step 4: had to delete the GroupAandB2 file by using the command  **“rm GroupAandB”**.

**Question 3:**

3.1)

* The data analyst in Linux uses pipes to streamline log file processing by chaining the commands which then extracts relevant lines with **grep** and refine the with **awk** and then sorts the data using **sort** and it then counts occurrences with **uniq**, achieving efficiency and powerful data analysis.

3.2)

* The “grep” command is used to filter out lines containing specific patterns or keywords.
* The “awk” command is used to extract specific fields from the filtered lines for further analysis.

3.3)

* Using the **sort** command it organizes refined data into a specific order, it facilitates patterns, identification, and preparation for further analysis such as counting unique occurrences.

3.4)

* The significance of the **uniq** command is that it identifies and counts unique lines in sorted data, revealing the frequency of each entry and providing insights into the patterns and trends.

3.5)

* It exemplifies the Unix philosophy by combining small, specialized tools such as, (**grep**, **awk**, **sort**, **uniq**) through pipes to efficiently perform complex data analysis and demonstrating the power of modular and sequential command usage.