**Instructions:**

**Write the answer to each question below the question in the space provided.   
You can “wrap-around” the answer on separate lines if you need more space.**

1. Hard Links:  
   1. What is the purpose of creating a hard-link?
   2. What is a limitation of a hard link?
   3. Write a single Linux command to create a hard link called **~/backup/myfile.txt.lnk** for the existing file called **~/myfile.txt**
   4. Write a single Linux command to display the **i-node** number for both files. Are the **i-node** numbers identical?
2. Symbolic (Soft) Links:  
   1. What is the purpose of creating a symbolic (soft) link?
   2. What is a limitation of a symbolic (soft) link?
   3. Write a single Linux command to create a symbolic link called **~/shortcuts/murray.saul.lnk**  
      to the existing directory called **~murray.saul**
   4. Are the i-node numbers identical for both of those files?
   5. What data is contained in the file called **~/shortcuts/murray.saul.lnk**?
3. Background / Foreground Processes:  
   1. Write a single Linux command to run the program called **~/clean.sh** in the **background**.
   2. Write a single Linux command to place the previously issued program in the **foreground**.
   3. Write a single Linux command to **confirm** that this program is running in the *background*.
   4. What **key-combination** would you issue to send that program again into the **background**?
   5. Write a single Linux command to have that process sent into the background   
      to **continue running**.
4. Managing Background processes:  
   Use the following diagram to answer the accompanying questions.  
   Each of the following questions will use the diagram below and are treated as independent situations.  
     
   **[1]  Stopped vim a  
   [2]- Stopped vim b  
   [3]+ Stopped vim c**
   1. Write a single Linux command to bring the second-recently process placed in the background into the **foreground**.
   2. Write a single Linux command to **terminate job #3**.
5. Write a single Linux command to display running processes in “real-time”.
6. Write a single Linux command to terminate a process that has the following PID: **22384**
7. Aliases / History:  
   1. Write a linux command to create an **alias** called **ld** that issues the command: **ls -ld**
   2. Write a linux command to unset the **alias** created in the previous question.
   3. Issue a Linux command to list **history** of commands that match the pattern called **touch**.
8. Create a **table** listing each Linux command, useful options and command purpose for the following Linux commands:  
   **ln** , **ps** , **top** , **fg** , **bg** , **jobs** , **kill** , **alias** , **unalias** , **history**