

# Free & Open Source Software Lab Report

## Experiments 4, 5, 6, 7, 9 Shell Programming - Set 1

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```

File Edit View Search Terminal Help
Process: 86630.0/s
ActivePages: 421727.0/s
ActivePage(s): 19406.0/s
ActiveFile(s): 99756.0/s
ActiveFile(s): 77774.0/s
Available: 41228.0/s
Stack: 0.0/s
SwapTotal: 9752084.0/s
SwapFree: 9752084.0/s
Uptime: 1848.0/s
Uptime(s): 0.0/s
MemPages: 2217763.0/s
MemPage: 35124.0/s
Mem: 230100.0/s
ObjectNumber: 33144.0/s
Obj: 26605.0/s
ObjectNumber: 33144.0/s
ObjectSize: 7158.0/s
ObjectSize: 35558.0/s
PageTables: 55916.0/s
PageTables: 0.0/s
MemPages: 0.0/s
MemPages_Total: 0
MemPages_Free: 0
MemPages_Used: 0
MemPages_Soft: 0
DirectMap: 33144.0/s
DirectMap: 684248.0/s
DirectMap: 1840176.0/s
/obj/side:

ATA device, with non-removable media
Model: WDC
Serial Number: 377890J815107772
Firmware Version: 848
Transport: Serial, ATA8-48, SATA 1.0b, SATA II Extensions, SATA Rev 1.5, SATA Rev 1.6, SATA Rev 1.0

Standard:
*** Basic unknown (near revision code 84801f)
*** Supported: 10 9 8 7 6 5

```

```

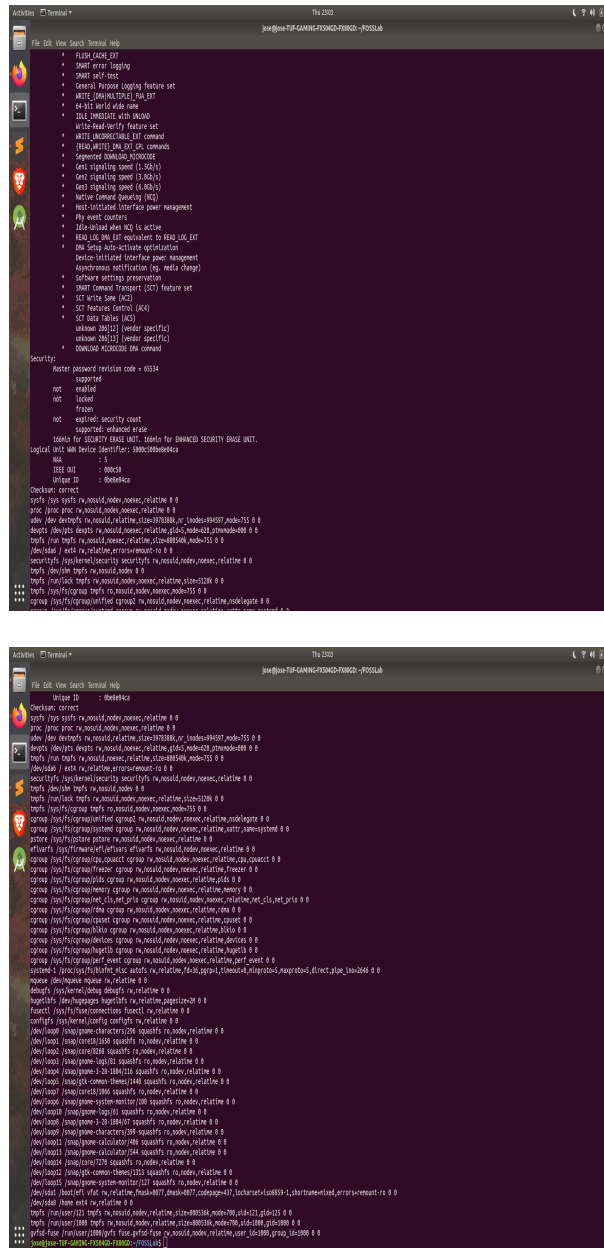
File Edit View Search Help
jmg@ubuntu:~/GANNING/PS3000-FORMER - PS0550L

Supported: 10 9 8 7 6 5
Likely used: 10

Configuration:
Logical:          max current
cylinders:       16380 16380
heads:           16      16
sectors/track    63      63
...

OIS current addressable sectors: 16510484
LBA user addressable sectors: 20845465
LBAH user addressable sectors: 33152109
Logical sector size: 512 bytes
Physical sector size: 4096 bytes
Logical sector offset: 8 bytes
device size with M = 312*1024 = 95368 Mbytes
device size with M = 300*1024 = 90000 Mbytes (3000 G)
cylinder factor = unknown
form Factor: 3.5 inch
nominal media rotation Rate: 5400

Capabilities:
UAD, DSDR (can be disabled)
Data Depth: 32
Standby timer values: spec'd by Standard, no device specific minimum
RAW multiple sector transfer: Rx = 30 Current = 10
Advanced user management level: 120
Recommended acoustic management value: 280, current value: 280
DMA: show DMA0 DMA1 DMA2 DMA3 DMA4 DMA5 DMA6 DMA7 DMA8 DMA9 DMA10 DMA11 DMA12 DMA13 DMA14 DMA15 DMA16 DMA17 DMA18 DMA19 DMA20 DMA21 DMA22 DMA23 DMA24 DMA25 DMA26 DMA27 DMA28 DMA29 DMA30 DMA31 DMA32 DMA33 DMA34 DMA35 DMA36 DMA37 DMA38 DMA39 DMA40 DMA41 DMA42 DMA43 DMA44 DMA45 DMA46 DMA47 DMA48 DMA49 DMA50 DMA51 DMA52 DMA53 DMA54 DMA55 DMA56 DMA57 DMA58 DMA59 DMA60 DMA61 DMA62 DMA63 DMA64 DMA65 DMA66 DMA67 DMA68 DMA69 DMA70 DMA71 DMA72 DMA73 DMA74 DMA75 DMA76 DMA77 DMA78 DMA79 DMA80 DMA81 DMA82 DMA83 DMA84 DMA85 DMA86 DMA87 DMA88 DMA89 DMA90 DMA91 DMA92 DMA93 DMA94 DMA95 DMA96 DMA97 DMA98 DMA99 DMA100 DMA101 DMA102 DMA103 DMA104 DMA105 DMA106 DMA107 DMA108 DMA109 DMA110 DMA111 DMA112 DMA113 DMA114 DMA115 DMA116 DMA117 DMA118 DMA119 DMA120 DMA121 DMA122 DMA123 DMA124 DMA125 DMA126 DMA127 DMA128 DMA129 DMA130 DMA131 DMA132 DMA133 DMA134 DMA135 DMA136 DMA137 DMA138 DMA139 DMA140 DMA141 DMA142 DMA143 DMA144 DMA145 DMA146 DMA147 DMA148 DMA149 DMA150 DMA151 DMA152 DMA153 DMA154 DMA155 DMA156 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DMA729 DMA730 DMA731 DMA732 DMA733 DMA734 DMA735 DMA736 DMA737 DMA738 DMA739 DMA740 DMA741 DMA742 DMA743 DMA744 DMA745 DMA746 DMA747 DMA748 DMA749 DMA750 DMA751 DMA752 DMA753 DMA754 DMA755 DMA756 DMA757 DMA758 DMA759 DMA760 DMA761 DMA762 DMA763 DMA764 DMA765 DMA766 DMA767 DMA768 DMA769 DMA770 DMA771 DMA772 DMA773 DMA774 DMA775 DMA776 DMA777 DMA778 DMA779 DMA780 DMA781 DMA782 DMA783 DMA784 DMA785 DMA786 DMA787 DMA788 DMA789 DMA790 DMA791 DMA792 DMA793 DMA794 DMA795 DMA796 DMA797 DMA798 DMA799 DMA800 DMA801 DMA802 DMA803 DMA804 DMA805 DMA806 DMA807 DMA808 DMA809 DMA810 DMA811 DMA812 DMA813 DMA814 DMA815 DMA816 DMA817 DMA818 DMA819 DMA820 DMA821 DMA822 DMA823 DMA824 DMA825 DMA826 DMA827 DMA828 DMA829 DMA830 DMA831 DMA832 DMA833 DMA834 DMA835 DMA836 DMA837 DMA838 DMA839 DMA840 DMA841 DMA842 DMA843 DMA844 DMA845 DMA846 DMA847 DMA848 DMA849 DMA850 DMA851 DMA852 DMA853 DMA854 DMA855 DMA856 DMA857 DMA858 DMA859 DMA860 DMA861 DMA862 DMA863 DMA864 DMA865 DMA866 DMA867 DMA868 DMA869 DMA870 DMA871 DMA872 DMA873 DMA874 DMA875 DMA876 DMA877 DMA878 DMA879 DMA880 DMA881 DMA882 DMA883 DMA884 DMA885 DMA886 DMA887 DMA888 DMA889 DMA890 DMA891 DMA892 DMA893 DMA894 DMA895 DMA896 DMA897 DMA898 DMA899 DMA900 DMA901 DMA902 DMA903 DMA904 DMA905 DMA906 DMA907 DMA908 DMA909 DMA910 DMA911 DMA912 DMA913 DMA914 DMA915 DMA916 DMA917 DMA918 DMA919 DMA920 DMA921 DMA922 DMA923 DMA924 DMA925 DMA926 DMA927 DMA928 DMA929 DMA930 DMA931 DMA932 DMA933 DMA934 DMA935 DMA936 DMA937 DMA938 DMA939 DMA940 DMA941 DMA942 DMA943 DMA944 DMA945 DMA946 DMA947 DMA948 DMA949 DMA950 DMA951 DMA952 DMA953 DMA954 DMA955 DMA956 DMA957 DMA958 DMA959 DMA960 DMA96
```



## 2.4 Result

The shell script for displaying required system configurations was made and the output was verified. The shell script was run on Ubuntu 18.04.3 LTS.

## 3 Menu-Driven Calculator

### 3.1 Aim

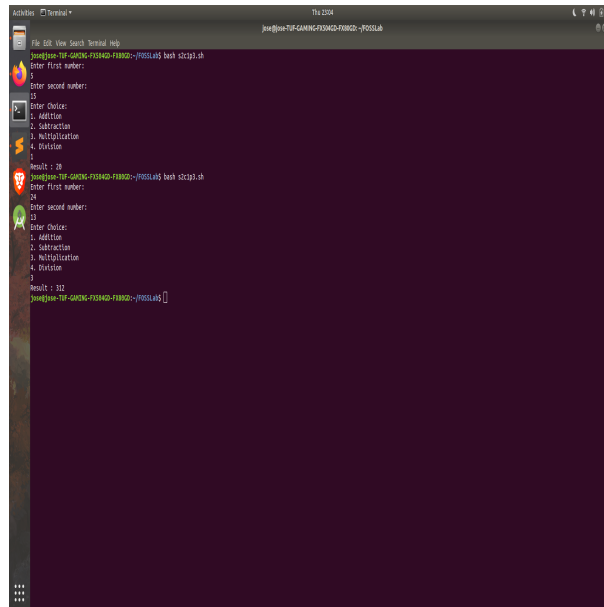
Write a shell script to implement a menu driven calculator with following functions:

- Addition
- Subtraction
- Multiplication
- Division
- Modulus

### 3.2 Source Code

```
echo "Enter first number: "  
read a  
echo "Enter second number: "  
read b  
echo "Enter Choice: "  
echo "1. Addition"  
echo "2. Subtraction"  
echo "3. Multiplication"  
echo "4. Division"  
read ch  
case $ch in  
  1)res='echo $a + $b | bc'  
    ;;  
  2)res='echo $a - $b | bc'  
    ;;  
  3)res='echo $a \* $b | bc'  
    ;;  
  4)res='echo "scale=2; $a / $b" | bc'  
    ;;  
  esac  
echo "Result : $res"
```

### 3.3 Sample



```
root@kali:~/Desktop# ./calculator.sh
Enter first number:
5
Enter second number:
13
Enter Choice:
1. Addition
2. Subtraction
3. Multiplication
4. Division
1
Result : 37
root@kali:~/Desktop# ./calculator.sh
Enter first number:
24
Enter second number:
13
Enter Choice:
1. Addition
2. Subtraction
3. Multiplication
4. Division
2
Result : 11
root@kali:~/Desktop#
```

### 3.4 Result

The shell script for a simple menu driven calculator was made and the output was verified. The script was run in Ubuntu 18.04.3 LTS and screenshot of output is attached above.

## 4 Script that accepts two arguments from the command line and operates on them

### 4.1 Aim

Write a script called addnames that is to be called as follows `./addnames ulist username`. Here ulist is the name of the file that contains list of user names and username is a particular student's username. The script should

- check that the correct number of arguments was received and print a message, in case the number of arguments is incorrect
- check whether the ulist file exists and print an error message if it does not
- check whether the username already exists in the file. If the username exists, print a message stating that the name already exists. Otherwise, add the username to the end of the list

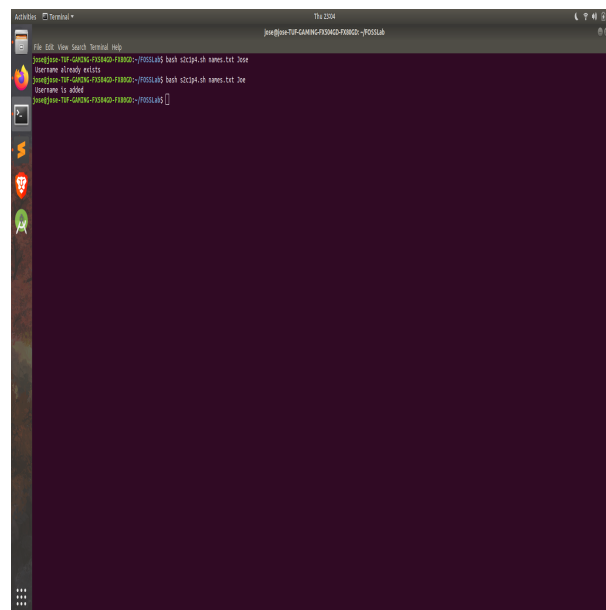
### 4.2 Source Code

```
if [[ $# -ne 2 ]]
then
```



```
echo " Invalid number of arguments "
exit
fi
if [[ ! ( -a $1 ) ]]
then
echo " Not a valid file location or file dosent exist "
exit
fi
NO=$( grep -c -e $2 $1 )
if [[ $NO -eq 0 ]]
then
echo $2 >> $1
echo " Username is added "
exit
else
echo " Username already exists "
exit
fi
```

### 4.3 Sample



### 4.4 Result

The required shell script was made and the output was verified. The script was run on Ubuntu 18.04.3 LTS.



## **5.4 Result**

A shell script for killing processes that consume more than a specific amount of memory and cpu was made and the output was verified. The shell script was run on Ubuntu 18.04.3 LTS.