

Experiment 4

Create a scientific calculator using Bash

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Program Code:

```
#!/bin/bash
#Created by Rohit Karunakaran

show_help()
{
    echo "
Scientific calculator implementation using bash.
Enter 'help' to show this menu.
Enter quit to exit

a+b    Add a and b
a-b    Subtract b from a
a*b    Multiply a and b
a/b    Divide a and b
a^b    Exponential, Raise a to the power of b
a%b    Modulo operation, Remainder of a/b

s(x)   sine of x, x is in radians
c(x)   cosine of x, x in radians
l(x)   natural log of x
e(x)   raise e to the power of x
sqrt(x) Find the square root of x"
}

calculate(){
    if [[ $1 = *'%'* ]]
    then
        scale=0
        echo "scale=${scale};${1}" | bc -l -q
    else
        scale=4
        echo "scale=${scale};${1}" | bc -l -q | awk '{printf "%.4f", $0}'
        echo ""
    fi
}

show_help

echo -n "Sci_calculator>> "

while read command
do
    case $command
    in
```

```

quit|exit) exit 0      ;;
help)      show_help  ;;
*)         calculate $command ;;
esac

```

```

echo -n "Sci_calculator>> "
done

```

Screenshots:

```

rohit@iris:~/Programing/Bash/CSL204/Experiment 4$ vim scientific_calc.sh
rohit@iris:~/Programing/Bash/CSL204/Experiment 4$ ./scientific_calc.sh

Scientific calculatior implementaion using bash.
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Sci_calculator>> 34+23
57.0000
Sci_calculator>> 38-75
-37.0000
Sci_calculator>> 23*9
207.0000
Sci_calculator>> 85/45
1.8888
Sci_calculator>> 23^4
279841.0000
Sci_calculator>> 72%23
3
Sci_calculator>> s(45)
0.8509
Sci_calculator>> c(34)
-0.8484
Sci_calculator>> s(45)^2+c(45)^2
1.0000
Sci_calculator>> l(34)
3.5263
Sci_calculator>> e(54)
283075330327469394755584.0000
Sci_calculator>> sqrt(2)
1.4142
Sci_calculator>> exit
rohit@iris:~/Programing/Bash/CSL204/Experiment 4$

```