



VIDYABHARTI TRUST COLLEGE OF BBA & BCA. UMRAKH
SUB: UNIX AND SHELL PROGRAMMING
UNIX EXTERNAL COMMANDS AND SCRIPTS – 2007 TO 2018

MARCH-APRIL-2018	
1.	Print All user/login names available in /etc/passwd.[MA-16]
Ans:	<pre>BEGIN{FS=":";OFS=":"} { print \$1; }</pre>
2.	Print the fields 2,3,4 and 6 from student.txt file which contains the pattern 'TYBCA'. [MA-16]
Ans:	<pre>BEGIN{FS=" ";OFS=" ";} /Tybca/{print \$2,\$3,\$4,\$6;}</pre>
3.	Prints all lines containing string 'for' in test.txt file. [MA-16]
Ans:	<pre>/for/{print NR,\$0;}</pre>
MARCH-APRIL : 2017	
4.	Display those words whose length is greater than 10 characters and consist of alphabets only.[MA-14][ON-16][ND-16]
Ans:	<pre>{ for(i=1;i<=NF;i++) { if(length(\$i)>10 && \$i~/^[A-Za-z]*\$/) { print \$i; } } }</pre>
5.	Print Odd numbers of words in each line.[MA-14][ON-16][ND-16]
Ans:	<pre>BEGIN{j=1;} { for(i=1;i<=NF; i+=2) { if(j%2==1) { print \$i; j=j+2; } } }</pre>
OCTOBER-NOVEMBER:2017	
6.	Create a student.dat file which contain rollno and marks of five tests. Write an awk script to calculate total and average marks for each student.
Ans:	<pre>BEGIN{FS=" ";OFS=" ";print"\nRNO S1 S2 S3 S4 S5 TOT AVG\n" =====};</pre>



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	<pre>{ Print \$1,\$2,\$3,\$4,\$5,\$6,(\$2+\$3+\$4+\$5+\$6), (\$2+\$3+\$4+\$5+\$6)/5; } END{print "=====\\n\\t REPORT GENERATED";}</pre>
7.	Print Even Numbers of words in each line.[MA-2014],[MA-2011]
Ans:	<pre>BEGIN{j=2;} { for(i=2;i<=NF;i+=2) { if(j%2==0) { print \$i; j=j+2; } } }</pre>
8.	Count occurrence of pattern 'Operating System' in file f1.[ON-16][ND-16]
Ans:	<pre>BEGIN{c=0;} /Operating System/{ c++; } END{ print "TOTAL OCCURANCE OF OPRATING SYSTEM IS:" c; }</pre>
9.	Using Awk find out the sum of each of n columns of an array of numbers given in tabular form. It should also display the grand totals. (n is to be taken command line argument) <pre>21 19 24 19 15 37 20 17 11</pre>
Ans:	
NOVEMBER-DECEMBER-2016	
10.	Write an awk script that will count total number of students in each department using file stud.txt having fields (rno,name,dept,marks). Display total marks department wise.



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Ans:	<pre>BEGIN{FS=" ";OFS=" ";print "DEPT STUD MARKS \n=====";} { stud_dept1[\$3]+=1; stud_dept[\$3]+=\$4; } END{for(d in stud_dept) { print d,stud_dept1[d],stud_dept[d]; } }</pre>
DECEMBER-2015	
11.	Write an awk script to reverse a file.
Ans:	<pre>{ for(i=length(\$0);i>0;i--) { c=substr(\$0,i,1); rev=rev c; } print rev; rev=""; }</pre> <p style="text-align: center;">.....OR.....</p> <pre>{ c=1; for(i=NF;i>=1;i=i-1) { l=length(\$i); a[\$c]=\$i; for(j=1;j>=1;j--) { printf "%c",substr(a[\$c],j,1); } printf " "; } printf "\n"; }</pre>
NOVEMBER/DECEMBER-2014	
12.	Write an awk script to print the file x1.txt. The output should such that there should be only 20 characters in each line. If line contain more than 20 characters should be printed on a next line.
Ans:	<pre>BEGIN{i=1;} { if(length(\$0)==20)</pre>



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	<pre>{ print NR,\$0; } Else { if(length(\$0)>=20) { c=substr(\$0,1,20) d=substr(\$0,21) print NR,c,"\n",d; } } OR..... BEGIN{i=1;} { if(length(\$0)>=20) { c=substr(\$0,1,20) d=substr(\$0,21) print NR,c,"\n",d; } }</pre>
13.	Using awk Simulate the following shell commands: (1) tail -40 file1 (2) head -20 file1 tail -6
Ans:	<p>(1). Ans:-</p> <pre>BEGIN{i=0;} { a[i]=\$0; i+=1; } END{for(i=FNR-40;i<=FNR;i++) print a[i]; }</pre> <p>→(2).Ans:-</p> <pre>BEGIN{i=0;} { if(NR<=20) { a[i]=\$0; i+=1; } }</pre>



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	<pre>} } END{c=20; for(i=c-6;i<=c;i++) print a[i]; }</pre>
14.	Count occurrence of pattern unix in file f1.
Ans:	<pre>BEGIN{c=0;} /Unix/{ c++; } END{print "TOTAL OCCURANCE OF UNIX IS:" c; }</pre>
15.	Display those words whose length is greater than 8 characters and consist of alphabets only.
Ans:	<pre>{ for(i=1;i<=NF;i++) { if(length(\$i)>8 && \$i~/^[A-Za-z]*\$/) { print \$i; } } }</pre>
16.	Write an awk script to print 1 to 10 nos.
Ans:	<pre>BEGIN{for(i=1;i<=10;i++) print i;}</pre>
17.	Write a command to print those lines where field2 is computer and field3 > 15000 from sales file.
Ans:	<pre>BEGIN{FS=" ";} { if(\$2=="computer" && \$3>15000) print \$0; }</pre>
18.	Print lines from 18 to 30 from file f1.
Ans:	<pre>NR==18,NR==30{ print NR,\$0;}</pre>
19.	Count total number of lines in a file.
Ans:	<pre>END{print "TOTAL NUMBER OF LINES IS : " FNR;}</pre>
20.	Print line which end with 5,6,7 from file f1.
Ans:	<pre>awk '/^[^.*[5,6,7]]\$/ { print \$0;}' f1</pre>
OCTOBER-NOVEMBER-2013	
21.	Write awk script to display the user login ids, their home directories and login shells from the "/etc/passwd" file.



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Ans:	<pre>BEGIN{FS=".";OFS="."} { print \$3,\$6,\$7; }</pre>
22.	Switch the first two fields in each line of a text and put the result in a new file.
Ans:	<pre>BEGIN{FS=" ";OFS=" ";} { print \$1,\$2; } ➔ Awk -f ON13.awk test.txt > fnew.txt ➔ cat fnew.txt</pre>
23.	To only print lines wherein the first field had a numeric value of less than 20.
Ans:	<pre>BEGIN{FS=" ";} { if(\$1<20) print \$0; }</pre>
SEPTEMBER-OCTOBER-2012	
24.	Write an awk script to display file content in reverse.(i.e, last line should be displayed first,..... and first line should be displayed last.) [MA-09]
Ans:	<pre>BEGIN{i=0;} { a[i++]= \$0 } END{for(j=i-1;j>=0;) print a[j--]}</pre>
NOVEMBER-2011	
25.	Write an awk script to print each odd lines twice and even lines thrice.
Ans:	<pre>{ if(NR%2==0) { for(i=1;i<=3;i++) { print NR,\$0; } print "\n"; } if(NR%2==1) { for(i=1;i<=2;i++) { print NR,\$0; } print "\n"; } }</pre>



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	<pre>} }</pre>
	MARCH-APRIL : 2011
26.	To Count Number of occurrence of pattern 'bca' in file f1.
Ans:	<pre>BEGIN{c=0;} /bca/{ c++; } END{print "TOTAL OCCURANCE OF BCA IS:" c; }</pre>
27.	To print words whose length is greater than 4 character and consist of digit only.
Ans:	<pre>{ for(i=1;i<=NF;i++) { if(length(\$i)>4 && \$i~/^[0-9]*\$/) { print \$i; } } }</pre>
28.	Write a script using awk utility to create two 3*3 matrix and multiply it. [ON-2009]
Ans:	<pre>BEGIN{sum=0;} ARGIND == 1 { for(i=1;i <= NF;i++) { f1[FNR,i]=\$i } f1_width = NF f1_height = FNR } ARGIND == 2 { for(i=1;i <= NF;i++) { f2[FNR,i] = \$i } f2_width = NF f2_height = FNR } END{ print "\n :: FIRST MATRIX :: \n" for(i=1;i<=f1_height;i++) { for(j=1;j<=f1_width;j++)</pre>



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```
{
    printf("%d ", f1[i,j])
}
printf("\n")
}
print "\n :: SECOND MATRIX :: \n"
for(j=1;j<=f2_height;j++)
{
    for(i=1;i<=f2_width;i++)
    {
        printf("%d ", f2[j,i])
    }
    printf("\n")
}
print "\n :: MULTIPLICATION OF TWO MATRICES :: \n"
if(f1_width != f2_height)
{
    print "MULTIPLICATION IS NOT POSSIBLE"
}
for(i=1;i<=f1_height;i++)
{
    for(j=1;j<=f2_width;j++)
    {
        for(k=1;k<=f1_width;k++)
        {
            sum += f1[i,k] * f2[k,j]
        }
        printf("%d ", sum)
    }
    printf("\n")
}
}
```

Run it As : awk -f matrix.awk file1 file2

APRIL-MAY:2011

29. Write an awk command to display the fields of each line in reverse order from file X1.

Ans:

```
{
    c=1;
    for(i=1;i<=NF;i=i+1)
    {
        l=length($i);
        a[$c]=$i;
        for(j=1;j>=1;j--)
        {
```




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	<pre> printf "%c",substr(a[\$c],j,1); } printf " "; } printf "\n"; }</pre>
MAY-JUNE-2010	
30.	Write an awk command to print the odd number lines from the file employee (eid,ename,salary,designation).
Ans:	<pre>BEGIN{FS=" ";OFS=" "}; { if(NR%2!=0) { print NR,\$1,\$2,\$3,\$6; } }</pre>
MARCH-APRIL : 2010	
31.	Write a script using awk utility to display file contents in toggle-case. Assume that file(s) should be passed from command-line.
Ans:	

X

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