CSC252 -- UNIX

AWK

Lisa Frye, Instructor

Kutztown University

frye@kutztown.edu

AWK

- gawk [options] [program] [file-list]

- gawk [options] –f program-file [file-list]

- Records

- Fields

- Awk program
  - pattern { action }

PATTERN

- BEGIN

- END

- Expression
  - ~
  - !~

ACTION

- if (conditional) then action [else action]
- while (conditional) action
- for (counter; conditional; increment) action
- for (variable in array) action
- do action while (conditional)
- break
- continue
- variable = expression
- print [list of expressions] [> expression]
- printf format [,list of expressions] [> expression] -> a comma will print a space
- next
- exit
- {list of statements}

SPECIAL VARIABLES

- FILENAME – name of the input file

- NF – number of fields in the current line

- NR – line number of the current line

- $0 – the entire line

- $1 – first field of the current line

- $2 – second field of the current line

- $3, $4, etc. – rest of fields

- FNR – record number in current file

- FS – input field separator

- OF$ - output field separator

AWK PROGRAM

- Awk commands (no single quotes)

- awk –f

- # Comments

STATEMENTS

- Statements

- Expression
  - Assignment operator: =
  - Logical operators: || && !
  - Matching operators: ~ !~
  - Relational operators: < <= == != > >=
  - Arithmetic operators: + - * / % ^
  - Increment and decrement operators: ++ --
  - Parenthesis

- String literals

SOME BUILTIN FUNCTIONS

int(num)	Returns integer portion of num
exp(num)	
log(num)	
sqrt(num)	
length(str)	Length of the string
substr(str,pos,len)	Returns substring of str that begins at pos for len characters
index(str1, str2)	Returns index of str2 in str1 or 0 if str2 is not present in str1
split(str, arr, del)	Places elements of str, delimited by del, in the array arr; Returns the number of elements in the array arr
printf and sprint	Similar to C
tolower / toupper	

ASSOCIATIVE ARRAYS

- Defintion

- array[string-key] = value;

- for (<elem> in <array>) <action>;

CONTROL STRUCTURES

- if / if-else

- while

- for

- break

- continue

EXAMPLES

- Print each registrant, the conference and the amount due from conf.data

- Print company, name and conference for all registrants that don't owe money

- Print name and amount due for registrants attending the Coatings conference and that owe money

- Previous example but print headings

EXAMPLES

- Print the entire contents of conf.data

- Print all the unique conferences (conference name) being offered for this year

- Print the number of unique conferences being held

EXAMPLES

- Write a program that calculates the average amount paid by all participants in the conf.data file. In addition, calculate the average amount owed by each participant, and print these values.

- Write a program that calculates the amount that was paid by each registrant. For each registrant, print out the name of the registrant, the amount paid, and the average amount paid by all registrants.

EXAMPLES

- Write a program using the conf.data file that does the following:
  - Calculate and print the number of people registered for conferences who come from Digital
  - Calculate and print the total amount owed for people from Digital
  - Calculate the average amount owed for registrants from Digital

EXAMPLES

- Write a program that will print the number of registrants registered for the Adhesions conference, Coatings conference and Resins conference

- Write a program to print the beginning and ending balance for bank.data records