

GAWK

RECALL:

```
BEGIN { ... initialization gawk statements ... }  
gawk commands to run on each line of the file  
END { ... finalization gawk statements ... }
```

- each command has the form:

```
pattern { action }
```

- action = one or more statements enclosed in braces

ASSOCIATIVE ARRAYS

- do not need to initialize
- simply refer to elements

ex: `arr[$1] = 1`

- can test for inclusion:
 - ex: `2 in arr`
 - tests if 2 is a key in arr

FUNCTIONS

- `length(str)` = number of characters
- `int(num)` = integer portion of num (not rounded)
- `index(str1, str2)` = starting index of `str2` in `str1` (1-based indexing)
- `split(str, arr, del)` = split `str` by `del`, place elements in `arr` (returns number of elements)
- mathematical functions are also available

FUNCTIONS (CONT.)

- `sprintf (fmt, args)` = string formatting
- `substr (str, pos, len)` = access substring
- `tolower (str)` = convert to lowercase
- `toupper (str)` = convert to uppercase

OTHER PREDEFINED VARIABLES

- OFS = output field separator (default space)
- ORS = output record separator (default newline)
- RS = input record separator (default newline)