LESSON 4

report.awk

```
{ total += $2 }
END {
  print total/NR
}
```

AWK

Variables

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AWK SCRIPTING

LESSON 4

Variables and Operators

Numbers, strings, arithmetic, concatenation and built-in variables

Variables Need No Declaration

vars.awk

```
{ total += $2; count++ }          # created on first use
END {
    avg = total / count
    name = "Average"
    print name ": " avg            # concatenation
}
```

- AWK variables appear the moment you use them. They start as empty string and zero at the …
- Each value is both a number and a string. AWK decides from how you use it: plus means a …

01

Arithmetic

Expression	Result	Meaning
`7 / 2`	`3.5`	always floating point
`7 % 2`	`1`	remainder
`2 ^ 10`	`1024`	power
`int(7 / 2)`	`3`	drop the fraction
`x += 5`	`x + 5`	shortcut

- AWK has plus, minus, times, divide, percent for remainder and caret for power. All numbers …
- Use int to drop the fraction, and the shortcuts plus equals, plus plus and minus minus just …

02

Strings and Concatenation

strings.awk

```
{
    full = $1 " " $2              # join with a space
    id   = "STU-" NR               # STU-1, STU-2 ...
    if ($1 == "Mariam") print "found:", full
    if ($1 < "M") print $1, "comes before M"
}
```

- Strings go in double quotes. To join strings, simply write them next to each other: first …
- Comparison works on strings too. Dollar one equals equals Mariam compares text, and the …

03

Built-in Variables

Variable	Meaning
NR · FNR	record number · per file
NF	number of fields
FS · OFS	input · output field separator
RS · ORS	input · output record separator
FILENAME · ENVIRON	current file · environment

- You already know NR, NF, FS and OFS. RS is the record separator, so setting RS to an empty …
- FILENAME holds the current file name, FNR counts lines within each file, and ENVIRON gives …

04

Passing Values with -v

terminal

```
$ min=80
$ awk -v min="$min" '$2 >= min { print $1 }' scores.txt
Mariam
Ahmad

$ awk -v city=Herat '$3 == city' scores.txt
```

- Never paste shell variables inside the AWK program. Use dash v name equals value instead, …
- This keeps quoting safe and makes your one-liners reusable, for example a minimum score …

05

Lesson Map


1
Variables Need No Declaration
2
Arithmetic
3
Strings and Concatenation
4
Built-in Variables
5
Passing Values with -v

Sources and Further Reading

vars.awk

```awk
{ total += $2; count++ }          # created on first use
END {
    avg = total / count
    name = "Average"
    print name ": " avg           # concatenation
}
```


strings.awk

```awk
{
    full = $1 " " $2              # join with a space
    id   = "STU-" NR               # STU-1, STU-2 ...
    if ($1 == "Mariam") print "found:", full
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```

Thank you for watching

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