Regular Expressions
(RegEx)

Regular expression is like another language

- What is a regular expression?

- Literal (or normal characters)
  - Alphanumeric
    - abc...ABC...0123...
  - Punctuation
    - -_ ,.;:=()/+ *%&{}[]?!$'^|\<>"@#

- Just like languages Regular expressions also have dialects
  - awk, egrep, Emacs, grep, Perl, POSIX, Tcl, PROSITE

Why use a regular expression?

To find a pattern

MALDVANRPMPKPEMFAAHRAKTLAELRKRKLEGVVLIYGFPE
PTRAHCDFEPVFRQESCFYWLTGVNEADCAYFLDIETGKEILFYP
DIPQAYIIWFGELATIDDIQQQQQGFEDVRLMPKIQETLAEYKL
KKIHTLPETCILKGYVAVKDKNEFIDVVGELRQIKDDDEMVLIQY
ACDVNSFAVRDTFKKVHPKMWEHQVEANLIKHYVDYYCRCFA
FSTIVCSGENCSILHYHHNNKFIEDGELILIDTGCEYNCAADNTR
TIPANGKFSPQQQQQQRAVYQAVVAVKLDCHNYVVAHAKPGV
WPDLAYDSAKVMAAGLLKLGLFQNGTVDEIVDAGALAVFYPH
GLGHGMGIDCHEIAHRAKGWPRGTCRGKKPHHSFVRFGRTLE
KGVVITNEPGCYFIRPSYNAAFADPEKSKYINKEVCERLRKTVGG
VRIEDDLLITEDGCKVLSNIPKEIHRAKDEIEAFMAKKESKL

Why use a regular expression?

To find a pattern

MALDVANRPMPKPEMFAAHRAKTLAELRKRKLEGVVLIYGFPE
PTRDRINKFEPVFRQESCFYWLTGVNEADCAYFLDIETGKEILFY
PDIPQAYIIWFGELATIDDI**QQQQQ**GFEDVRLMPKIQETLAEYK
LKKIHTLPETCILKGYVAVKDKNEFIDVVGELRQIKDDDEMVLIQ
YACDVNSFAVRDTFKKVHPKMWEHQVMILKHYVDYYCRCFAF
STIVCSGENCSILHYHHNNKFIEDGELILIDTGCEYNCAADNTRTI
PANGKFSP**QQQQQ**RAVYQAVVAVKLDCHNYVVAHAKPGVW
PDLAYDSAKVMAAGLLKLGLFQNGTVDEIVDAGALAVFYPHGL
GHGMGIDCHEIAHRAKGWPRGTCRGKKPHHSFVRFGRTLEKG
VVITNEPGCYFIRPSYNAAFADPEKSKYINKEVCERLRKTVGGVR
IEDDLLITEDGCKVLSNIPKEIHRAKDEIEAFMAKKESKL

Why use a regular expression?

To find a pattern

MALDVANRPMPKPEMFAAHRAKTLAEL**RKRK**LEGVVLIYGFP
EPTRDRINKEPVFRQESCFYWLTGVNEADCAYFLDIETGKEILFY
PDIPQAYIIWFGELATIDDI**QQQQQ**GFEDVRLMPKIQETLAEYK
LKKIHTL**RKRK**ILKGYVAVKDKNEFIDVVGELRQIKDDDEMVLIQ
YACDVNSFAVRDTFKKVHPKMWEHQVMILKHYVDYYCRCFAF
STIVCSGENCSILHYHHNNKFIEDGELILIDTGCEYNCAADNTRTI
PANGKFSP**QQQQQ**RAVYQAVVAVKLDCHNYVVAHAKPGVW
PDLAYDSAKVMAAGLLKLGLFQNGTVDEIVDAGALAVFYPHGL
GHGMGIDCHEIAHRAKGWPRGTCRGKKPHHSFVRFGRTLEKG
VVITNEPGCYFIRPSYNAAFADPEKSKY**RKRK**VCERLRKTVGGV
RIEDDLLITEDGCKVLSNIPKEIHRAKDEIEAFMAKKESKL

Why use a regular expression?

To find a pattern

MALDVANRPMPKPEMFAAHRAKTLAEL**RKRK**LEGVVLIYGFP
EPTR**DRINK**EPVFRQESCFYWLTGVNEADCAYFLDIETGKEILFY
PDIPQAYIIWFGELATIDDI**QQQQQ**GFEDVRLMPKIQETLAEYK
LKKIHTL**RKRK**ILKGYVAVKDKNEFIDVVGELRQIKDDDEMVLIQ
YACDVNSFAVRDTFKKVHPKMWEHQV**MILK**HYVDYYCRCFAF
STIVCSGENCSILHYHHNNKFIEDGELILIDTGCEYNCAADNTRTI
PANGKFSP**QQQQQ**RAVYQAVVAVKLDCHNYVVAHAKPGVW
PDLAYDSAKVMAAGLLKLGLFQNGTVDEIVDAGALAVFYPHGL
GHGMGIDCHEIAHRAKGWPRGTCRGKKPHHSFVRFGRTLEKG
VVITNEPGCYFIRPSYNAAFADPEKSKY**RKRK**VCERLRKTVGGV
RIEDDLLITEDGCKVLSNIPKEIHRAKDEIEAFMAKKESKL

VAVK

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DIPQAYIIWFGELATIDDIQQQQQGFEDVRLMPKIQETLAEYKL
KKIHTLRKRKILKGY**VAVK**DKNEFIDVVGELRQIKDDDEMVLIQY
ACDVNSFAVRDTFKKVHPKMWEHQVMILKHYVDYYCRCFAFS
TIVCSGENCSILHYHHNNKFIEDGELILIDTGCEYNCAADNTRTIP
ANGKFSPQQQQQQRAVYQAV**VAVK**LDCHNYVVAHAKPGVWP
DLAYDSAKVMAAGLLKLGLFQNGTVDEIVDAGALAVFYPHGLG
HGMGIDCHEIAHRAKGWPRGTCRGKKPHHSFVRFGRTLEKGV
VITNEPGCYFIRPSYNAAFADPEKSKYRKRKVCERLRKTVGGVRI
EDDLLITEDGCKVLSNIPKEIHRAKDEIEAFMAKKESKL

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DIPQAYIIWFGELATIDDIQQQQQGFEDVRLMPKIQETLAEYKL
KKIHTLRKRKILKGYVAVKDKNEFIDVVGELRQIKDDDEMVLIQY
ACDVNSFAVRDTFKKVHPKMWEHQVMILKHYVDYYCRCFAFS
TIVCSGENCSILHYHHNNKFIEDGELILIDTGCEYNCAADNTRTIP
ANGKFSPQQQQQRAVYQAVVAVKLDCHNYVVAHAKPGVWP
DLAYDSAKVMAAGLLKLGLFQNGTVDEIVDAGALAVFYPHGLG
HGMGIDCHEIAHRAKGWPRGTCRGKKPHHSFVRFGRTLEKGV
VITNEPGCYFIRPSYNAAFADPEKSKYRKRKVCERLRKTVGGVRI
EDDLLITEDGCKVLSNIPKEIHRAKDEIEAFMAK**KDEL**

KDEL$

[HK]DEL$

- MLSTDNVANRPMPKPEMF….

- Text: The sequence must start with an methionine, followed by any amino acid, followed by a serine or a threonine, two times, followed by any amino acid or nothing, followed by any amino acid except a valine.

- Regex: ^M.[ST]{2}.?[^V]