## Extended Regular Expressions

## Elementary Operations

single characters

$$
\text { except"\. } \$^{\wedge}[]-?^{*}+\mid() /\{ \} \%<>
$$

concatenation (put characters together)
alternation (a|b|c)
[ab] $==\mathrm{a} \mid \mathrm{b}$
$[\mathrm{a}-\mathrm{k}]==\mathrm{a}|\mathrm{b}| \mathrm{c}|\ldots| \mathrm{i}|\mathrm{j}| \mathrm{k}$
[a-z0-9] == any letter or digit
$[\wedge \mathrm{a}]==$ any character but a
. matches any character except the newline

* -- Kleene Closure
+ -- Positive Closure
Examples:
[0-9]+"."[0-9]+
note: without the quotes it could be any character
[ $\backslash t]+$-- is whitespace
(except CR).
There is a blank space character before the $\backslash t$


## Special Characters:

-- matches any single character (except newline)
" and $\backslash$-- quote the part as text
lt -- tab
In -- newline
lb -- backspace
\" -- double quote
II -- \}
? -- this means the preceding was optional
ab ? $==\mathrm{a} \mid \mathrm{ab}$
(ab)? $==\mathrm{ab} \mid \mathrm{e}$
$\wedge \quad--$ means at the beginning of the line (unless it is inside of a [ ] )
$\$$ means at the end of the line, same as $\Lambda n$
[^] -- means anything except
\"[^\"]*"" is a double quoted string
$\{\mathrm{n}, \mathrm{m}\}$ - n through m occurrences
$\mathrm{a}\{1,3\}$ is a or aa or aaa
\{varName \} - translation of varName from definition
/ -- matches only if followed by right part of /
$0 / 1$ means the 0 of 01 but not 02 or 03 or $\ldots$
() - grouping

