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are principles to the design to the last of the last	Repular Ful
	Regular Expressions of which to when
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	Regular expressions are used for information contains use at the
	in on apartine is a si
State of the State	Regular expressions are used for representing certain sets of strings in an algebraic fashion
and the second s	
1)	Any terminal symbol i.e. symbols E E including ~ (Empty) and (mull) are regular expression.
	regular intraversion
	regular regulation.
	Example -> a,b,c
	and the state of t
2)	The union of two moules expressions is also a reactor expression
7	The union of two regular expressions is also a regular expression. $example \rightarrow R_1, R_2 \Longrightarrow (R_1 + R_2)$
	$example \rightarrow R_1, R_2 \Longrightarrow (R_1 + R_2)$
3)	The concatenation of two regular expressions is also a negular
	ort-action
	expression.
	example $\rightarrow R_1, R_2 \Rightarrow (R_1, R_2)$
4)	The iteration (or closure) of a regular rexpression is also a
	in the state of th
	regular expression.
	example $\rightarrow R \rightarrow R * a * = \phi, a, aa, aaa$
	Para the second of the second
<u>~</u> )	The second will be and breatesty those obtained reassingly
	The signed expression contract of the signed sections and
	The regular expression over $\Sigma$ are precisely those obtained recursively by the application of othe above rules conce or several times
	The second state of the se
4 1	TO TELEPONIE TO THE PROPERTY OF THE PROPERTY O
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. 1	그는 사람들은 사람들이 되었다. 그는 사람들이 되었다면 하는 사람들이 되었다면 하는 사람들이 되었다.

	6 11 10 1 5
	Examples of Regular Expression
1	
1	Starting with 1 and end with 0.
	First commend is a second of the country of country
21 1 " 1 2 1 3 1 1	First symbol is I and ends with a in middle it can be anything.
	RE= 1 (0+1)*0
	A A SAME OF THE PERSON OF THE
2	Starting and ending with a and any no of b's in between.
	Company of the second of the s
	a (b, E, bb, bbb, bbbbbbbb) a
	RE=a(b)*a
	and the state of the second of
.3.	Starting with a and not having consecutive b's.
	a (a, E, ab, aba, abab, ababao, aaab, aaabaaba)
	RE = (a + ab)*
	A de la ministration estre de la Carlos de la Mariana Maria
4.	Any number of a's, any number of b's, any number of c's followed al
4	together.
	$L = \{abc, a, ab, ac, bc, bcc\}$
1127775	RE = a*b*c*
	2-502
5.	RF. for even length of string over E = { 0}
	RE = (00)**
	O. C. and Charles and Charles
6.	R.f. for alleast one 0 and one 1  Rf = KOXX
	$[(0+1)^*0(0+1)^*1(0+1)^*] + [(0+1)^*1(0+1)^*0(0+1)^*$
9-1	

## Identities of Regular Expression

$$S)$$
  $R+R=R$ 

			Extractional designation of the Contraction of the
And		may a	
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- the Until	10	ine	$\mathcal{W} \mathcal{F} \mathcal{M}$
		THE PERSON NAMED IN COLUMN	and the first to

If fund a are two Regular Expressions over  $\Sigma$ , and if P does not contain E, then the following equation in R given by R = Q + RP has a unique solution i.e. R = QP \*

$$R = Q + RP - (D)$$
 $Replace Rwith R = QP^*$ 
 $= Q + QP^*P$ 
 $= Q(E + P^*P)$ 
 $= QP^*$ 
 $= QP^*$ 
 $= QP^*$ 

## Proof for unique solution.

R = Q + RP Replace R with R = Q + RP R = Q + (Q + RP)P  $R = Q + QP + RP^2$  Replace R with R = Q + RP  $R = Q + QP + (Q + RP)P^2$ 

$$R = Q + gP + QP^2 + RP^3$$
in time

R = QP\*

ample	Prove that (1+00 × 1) + (1+00 × 1) (0+10 × 1) * (0+10 × 1) in equal
State of the State	to 0*1 (0+10*1)*
of track was property	146 m / 11 m + 1 \ 1 / 1 m n + 1 \ 1 / 1 m n + 1 \ 1 / 1 m n + 1 \
	LHS:- (1+00*1)+ (1+00*1) (0+10*1) + (0+10*1)
and the second s	= (1+00×1) { E+ (0+10+1)*(0+10+1) } E+R*R=R
Name and Address of the Owner, where the Owner, which is the Owner, where the Owner, which is the Ow	> (1+00*1) (0+10*1)*
	-) (E. 1+00*1) (0+10*1)* 2.R=R
	=) (E+00*)1(0+10*1)* E+R*R=R
	=) 0*1(0+10*1)*
	Service of the servic
	THE RESERVE OF THE PARTY OF THE
	The state of the s
The state of the s	

## NFA to regular expression Conversion:

$$q_3 \rightarrow q_2 a - 0$$

## Solve all three expression above: -

93=920

= (q, a + q, b + q, b) a putting value of q, from (2)

= 
$$q_1aa + q_2ba + q_3ba \rightarrow (4)$$

92= 9,a+q2b+q3b

= q, a + q2b+ q2ab putting q3 from 1)

 $q_1 \Rightarrow q_1a + q_2(b+ab)$  R = Q + RP = QP\*

q, =)(q,a)(b+ab)\* ->5)

91 = E+9,9+92b

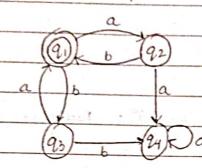
$$= q + q_1 a + ((q_1 a)(b + ab)^*)b$$

 $\frac{q_1}{R} = \frac{E + q_1(a + a(b + ab)^*)b}{R}$ R=B+RP=QP\*

9,= (a, e((a+a(b+ab)\*)))\* E.R=P

and the second distribution with a	91= (a+a(b+ab)* b)* -60
	Final State 93-3
	93= 9,0 frem cq. (5) 93= 9,0 (b+ab)* a 93 = ((a+a(b+ab)*)b)* a(b+ab)*a, Pulling value of q, from (6)
	((a+a(b+ab)*)b)*)a(b+ab)*a
	Child this Child and property of parety of
8	Constitution of the consti
	A - 2 A - 2

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the state of the s	mession s	onuession



	Conversion of Regular Expression to Finite Automata
	Rules to Remember :
	Rules to Remember:
1	(a+b)
	a e
	(91) (92) 08 (91) a, b (92)
	h
2٠	(a · b) or (ab)
	•••
	(A) a (B) b (C) (M) (M) (M) (M)
,	11.
3.	a*
	a va
Example	RE to FA (10 + (0+11)0*1)
	A COLOR SERVICE SERVICE SERVICES
	10+(0+11)0*1
	$\rightarrow (q_1) \longrightarrow (q_2)$
	$\rightarrow (q_1)$ $\rightarrow (q_2)$
	(0+11)0*1
	$\rightarrow (\widehat{q_1}) \rightarrow (\widehat{q_2}) \rightarrow (\widehat{q_1})$
	CO+11)O*1
	(0+11)0-1

Ūn.

