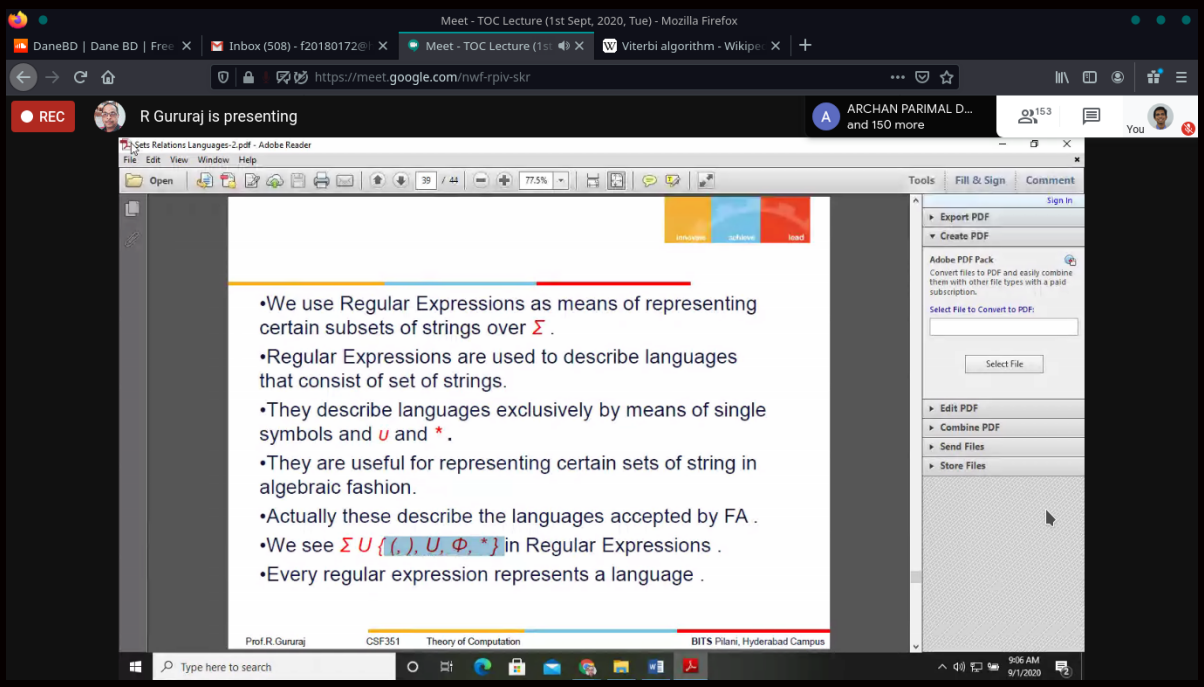

$\Sigma = \{a, b\}$ valid RE on Σ contains $\{a, b, (,), \cup, *, \phi\}$

X is an RE $a \rightarrow (a \cup b)$ ϕ] also RE (each symbol in Σ is valid as RE

Y is an RE b $(a \cup b)$ a^*, b^*]

Kleene * ↵

RE and Language → established by a function h

α – RE, $h(\alpha)$ is a language represented by α

Language can have the symbols in the RE, and some from outside.

( ) → not an RE, as atleast-ϕ should be there

We define the L function as follows. — a is a symbol of Σ

1. $L(\Phi) = \Phi$ and $L(a) = \{a\}$ for each a of Σ.
2. If α and β are REs then then $L((\alpha\,\beta)) = L(\alpha) . L(\beta)$ } Concatenation of 2 languages
3. If α and β are REs then then $L((\alpha \cup \beta)) = L(\alpha) \cup L(\beta)$
4. If α is a REs then then $L(\alpha^*) = L(\alpha)^*$

α an RE

L(α) is RE → L(α*) is also RE and

$\Sigma = \{a, b, c, d\}$ $L(x) = \{a, b\}$, $L(y) = \{c, d\}$

Language: $L((xy)) = L(x)L(y)$

$\{a, b\}.\{c, d\} = \{ac, bc, bc, ad\}$