UNIVERSITY OF ASIA PACIFIC

Department of Computer Science & Engineering

Course Title : Theory of Computation

Course Code : CSE 307

Assignment No. : 01

Assignment Topic : *A real time scenario of Automata*

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A real time scenario of automata

Scenario

"Mr.X" is a regular student of UAP. He is a programming enthusiast since he wants to become a web developer, he asked one of his teacher Nadeem sir for the instructions and suggestions. Sir says, to become a web developer he (Mr.X) must learn a language first. Python is very much preferrable for it. After a noob web developer should start learning html, css and javascript for design and build the core architecture of the site. After that, implementation should be done using a framework. Nadeem sir suggests "django" as a framework used by all over the world.

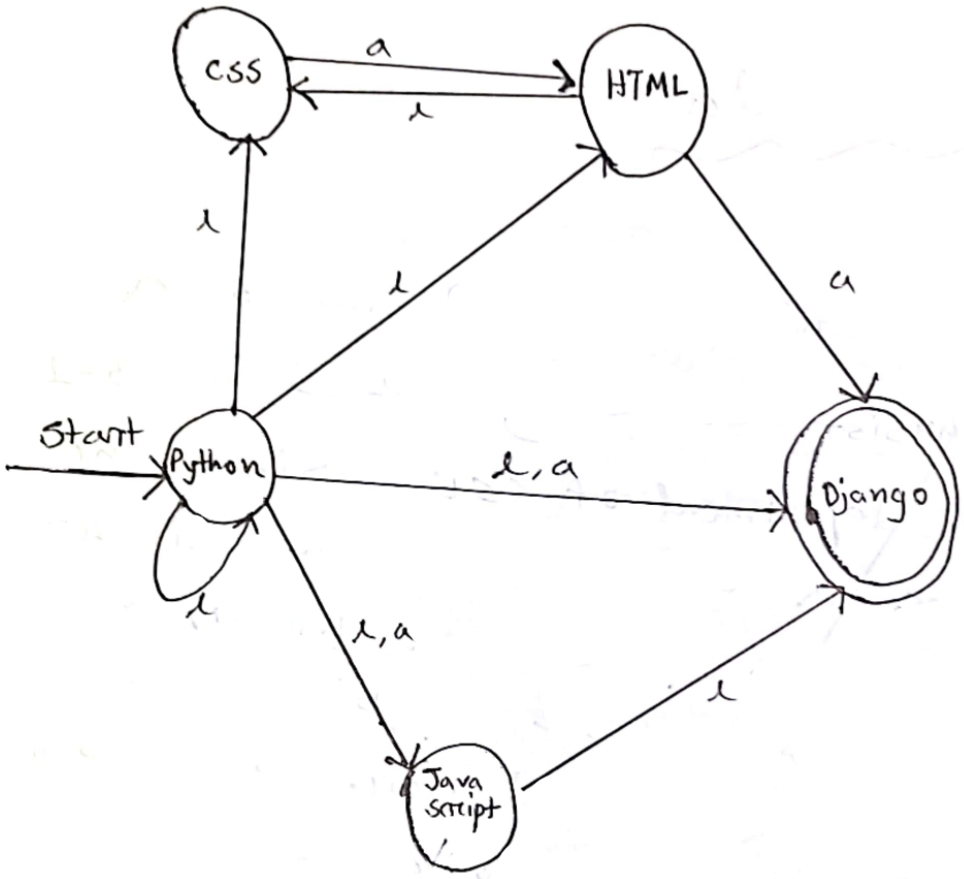
So now, Mr.X knows what to learn. Now the question is where to learn?

Since, youtube tutorials were too much complicated for Mr. X to understand, he decided to enroll a web development course provided by "Programming Hero". The authority of programming hero says that they will do their level best to achieve Mr. X to his soul-goal.

So now, the learning sequence of Mr. X to become the web developer is -

1) Python
2) HTML
3) CSS
4) JavaScript
5) Django

considering Python as initial state and Django as final state, corresponding NFA, DFA & state transition table's are —



Here,
l = learn
a = apply
as inputs

Fig 01: NFA for web development considering python as initial and Django as final state.

State transition table
For NFA

state	l	a
Python	{Python, HTML, CSS, Javascript, Django}	{Javascript, Django}
HTML	{CSS}	{Django}
CSS	∅	{HTML}
Javascript	{Django}	∅
Django	∅	∅

Using this, to construct DFA; corresponding state table is below –

State transition table for DFA

State	e	a
[Python]	[Python, HTML, CSS, Javascript, Django]	[Javascript, Django]
[Python, HTML, CSS, Javascript, Django]	[Python, HTML, CSS, Javascript, Django]	[HTML, Javascript, Django]
[Javascript, Django]	[Django]	∅
[HTML, Javascript, Django]	[CSS, Django]	[Django]
[Django]	∅	∅
[CSS, Django]	∅	[HTML]
[HTML]	[CSS]	[Django]
[CSS]	∅	[HTML]

considering the state transition table for DFA, corocesponding state diagram of DFA is below:

Here,

λ = learn
a = apply
as inputs

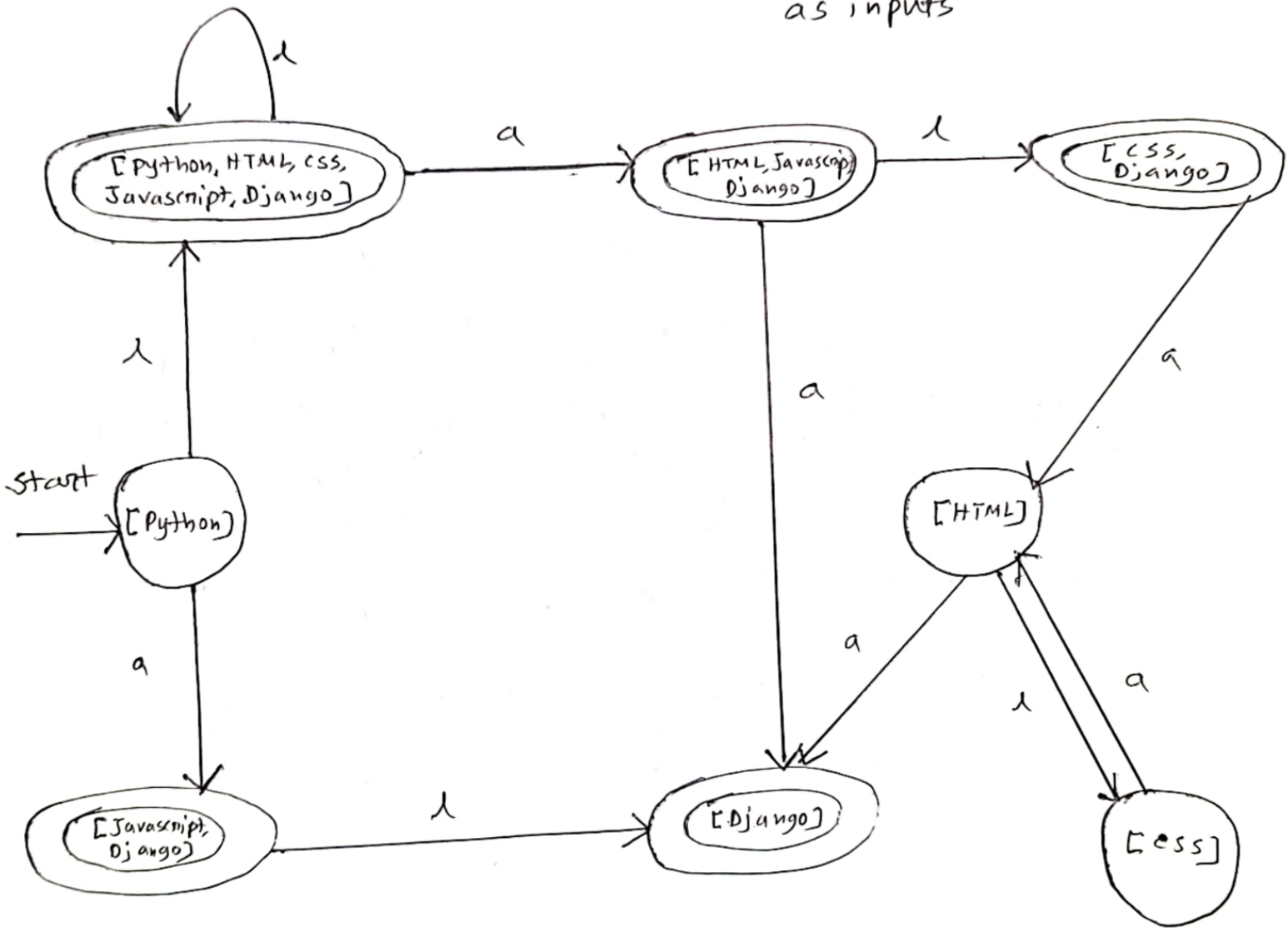


Fig 02: DFA for web development