Project presentation on

Time Table Automation

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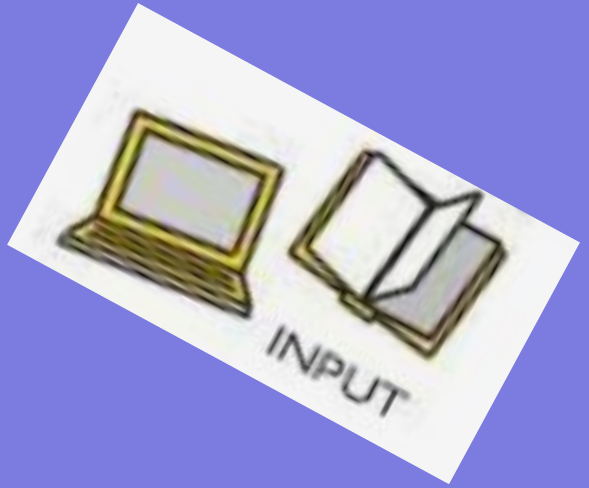
Objectives: -

- Preparing Time Tables manually takes too much time.

Main Objective: -

- To design an algorithm to solve this problem effectively and efficiently.
- Generate particular year semester time tables provided other time tables are already generated.

User Input And Segregation of input.



Input Format: CSV for Semester 3 (A and B section)...

code	type	name	branch1	semester1	branch2	semester2	branch3	semester3	classroom_code1	classroom_code2	classroom_code3	faculty1	faculty2	faculty3	theory	tutorial	lab	lab_name
MA201	c	Probability	CSE	Sem_3_A	NA	NA	NA	NA	C201	NA	NA	Dr. Lakshman	NA	NA	3	1	0	CS_LAB
CS201	c	DM	CSE	Sem_3_A	NA	NA	NA	NA	C201	NA	NA	Dr. Rashmi Agarwal	NA	NA	3	1	0	CS_LAB
CS207	c	OOP	CSE	Sem_3_A	NA	NA	NA	NA	C201	NA	NA	Dr. Vivekraj	NA	NA	3	0	2	CS_LAB
CS202	c	DAA	CSE	Sem_3_A	NA	NA	NA	NA	C201	NA	NA	Dr. Malay Kumar	NA	NA	3	1	2	CS_LAB
HS206	c	IP	CSE	Sem_3_A	NA	NA	NA	NA	C201	NA	NA	Dr. Anushree	NA	NA	3	1	0	CS_LAB
EC105	c	CA	CSE	Sem_3_A	NA	NA	NA	NA	C201	NA	NA	Dr. Jagadeesha R Bhat	NA	NA	0	0	2	CS_LAB
MA201	c	Probability	CSE	Sem_3_B	NA	NA	NA	NA	C202	NA	NA	Dr. Lakshman	NA	NA	3	1	0	CS_LAB
CS201	c	DM	CSE	Sem_3_B	NA	NA	NA	NA	C202	NA	NA	Dr. Rashmi Agarwal	NA	NA	3	1	0	CS_LAB
CS207	c	OOP	CSE	Sem_3_B	NA	NA	NA	NA	C202	NA	NA	Dr. Pramod Yelmewad	NA	NA	3	0	2	CS_LAB
CS202	c	DAA	CSE	Sem_3_B	NA	NA	NA	NA	C202	NA	NA	Dr. Radhika	NA	NA	3	1	2	CS_LAB
HS206	c	IP	CSE	Sem_3_B	NA	NA	NA	NA	C202	NA	NA	Dr. Anushree	NA	NA	3	1	0	CS_LAB
EC105	c	CA	CSE	Sem_3_B	NA	NA	NA	NA	C202	NA	NA	Dr. Jagadeesha R Bhat	NA	NA	0	0	2	CS_LAB
EC105	e	CA	CSE	Sem_3_A	CSE	Sem_3_B	NA	NA	C201	C202	NA	Dr. Jagadeesha R Bhat	New1	New2	3	0	2	CS_LAB

Each element in each row is a parameter/argument to parameterized constructor in python. (Each row is an object which belongs to the class ‘node_for_courses’).

Input Format: Lab Details... (CSV file) as input

Lab Number	Capacity	Type(CSE/ECE)
L106	50	CSE
L107	50	CSE
L206	50	CSE
L207	50	CSE
L406	50	ECE
L999	50	ECE

Each element in each row is a parameter/argument to parameterized constructor in python.
(Each row is an object which belongs to the class ‘add_labs’ inserted in LL.

More about: Class ‘node_for_courses’ and its parameterized constructor

What it does: -

Segregates Core and electives based on the ‘type’ parameter.

1. Adds a new classroom if found.
2. Adds a new Semester if found.
3. Adds a new lab if found.
4. Adds a lab node,theory node,tutorial node.

   Question: Where it adds? -In one of the 8 linked lists.

Contents of Linked List: -

Linked List for Lab: -

```
code:  CS207_LAB_(B1)
name:  OOP
branch1 CSE
faculty1:  Dr. Vivekraj
lab time in minutes:  120


code:  CS207_LAB_(B2)
name:  OOP
branch1 CSE
faculty1:  Dr. Vivekraj
lab time in minutes:  120
```

Linked List for Lab: -

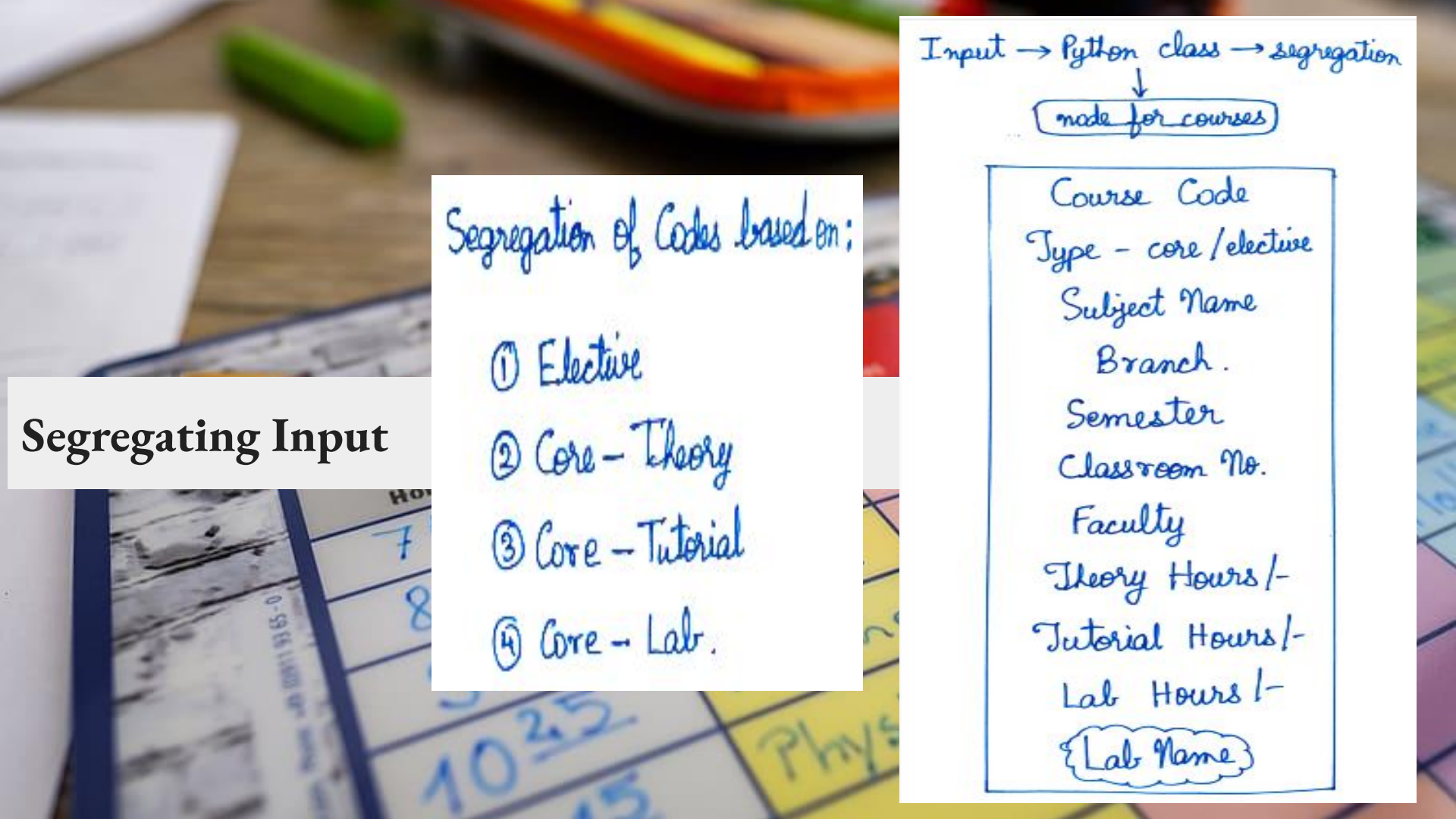
```
code:  EC105_LAB_(B1)
name:  CA
branch1 CSE
faculty1:  Dr. Jagadeesha R Bhat
lab time in minutes:  120


code:  EC105_LAB_(B2)
name:  CA
branch1 CSE
faculty1:  Dr. Jagadeesha R Bhat
lab time in minutes:  120
```

Similarly LL for Theory and tutorial

They are again divided into 3 linked lists Branch pointers…(not shown due to our initial data)

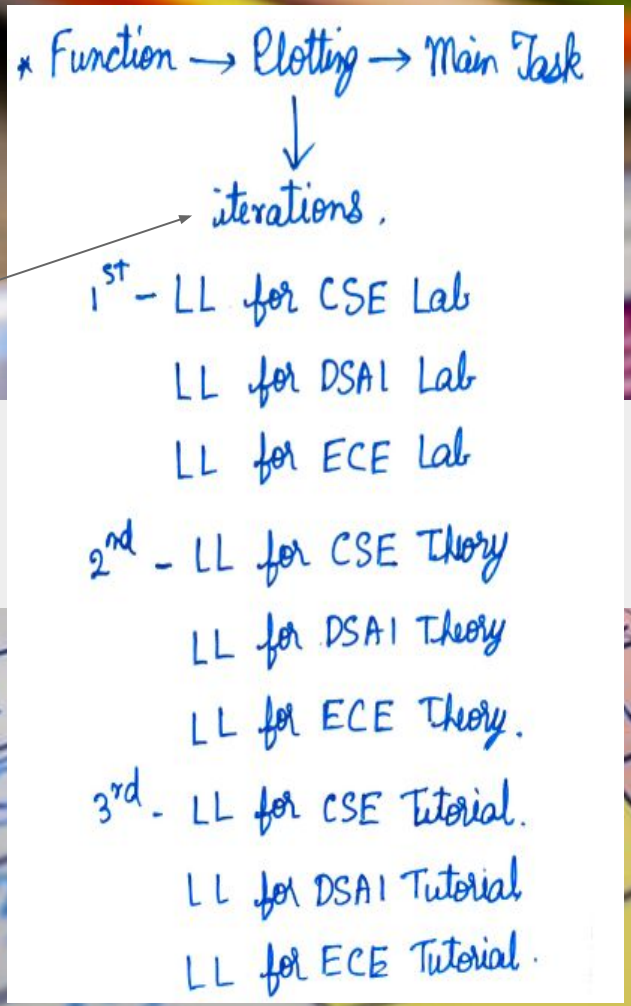
Converting Time from hours into minutes...

Segregating Input



1st: Sort the Faculty acc to busy hours (setting priority)
2nd: While traversing each faculty (considered as one iteration stage) i.e, one faculty in one iteration.

Scheduling Algorithm



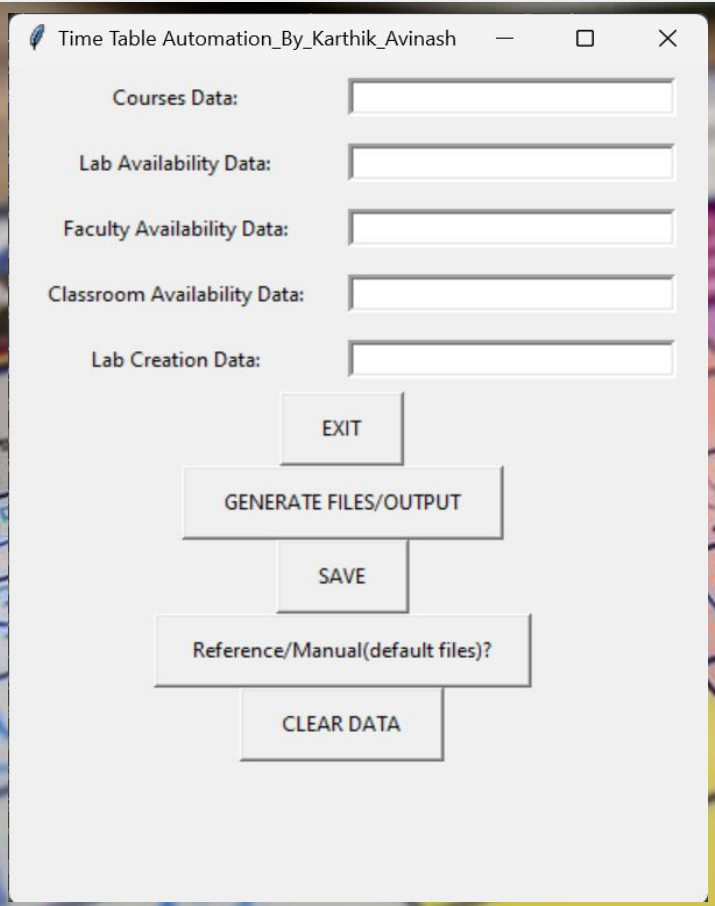
Book a slot in the time tables for respective nodes in LL in each iteration

Sample Code Output(latest Version) (Sample data is given as input)

CSE_Sem_3_A

Slot	I	BREAK	II	III	LUNCH	IV	V	VI	VII
Day/Time	9:00-10:30		11:00-12:00	12:00-1:00		2:00-3:30	3:30-5:00		.
Monday	CS201_TH		CS207_LAB_(B1) L106 / CS202_LAB_(B2) L107	CS207_LAB_(B1) L106 / CS202_LAB_(B2) L107		CS202_TH	EC105_LAB_(B2) L206	.	.
Tuesday	EC105_TH		CS207_LAB_(B2) L106 / CS202_LAB_(B1) L107	CS207_LAB_(B2) L106 / CS202_LAB_(B1) L107		CS201_TH	HS206_TH(C701) /HS206_TH(C201) /HS206_TH(C202) /	.	.
Wednesday	CS207_TH		CS202_TUT	MA201_TUT		EC105_TH	HS206_TH(C701) /HS206_TH(C201) /HS206_TH(C202) /	.	.
Thursday	CS202_TH		CS201_TUT	*		MA201_TH	HS206_TUT(C205) /HS206_TUT(C801) /	.	.
Friday	CS207_TH		EC105_LAB_(B1) L106	EC105_LAB_(B1) L106		MA201_TH	*HS206_TUT(C205) /	.	.

Command Line Version



We can create a time table for a separate semester which may have started early or late than the normal schedule with no conflict with running courses with the availability information passed to this interface.