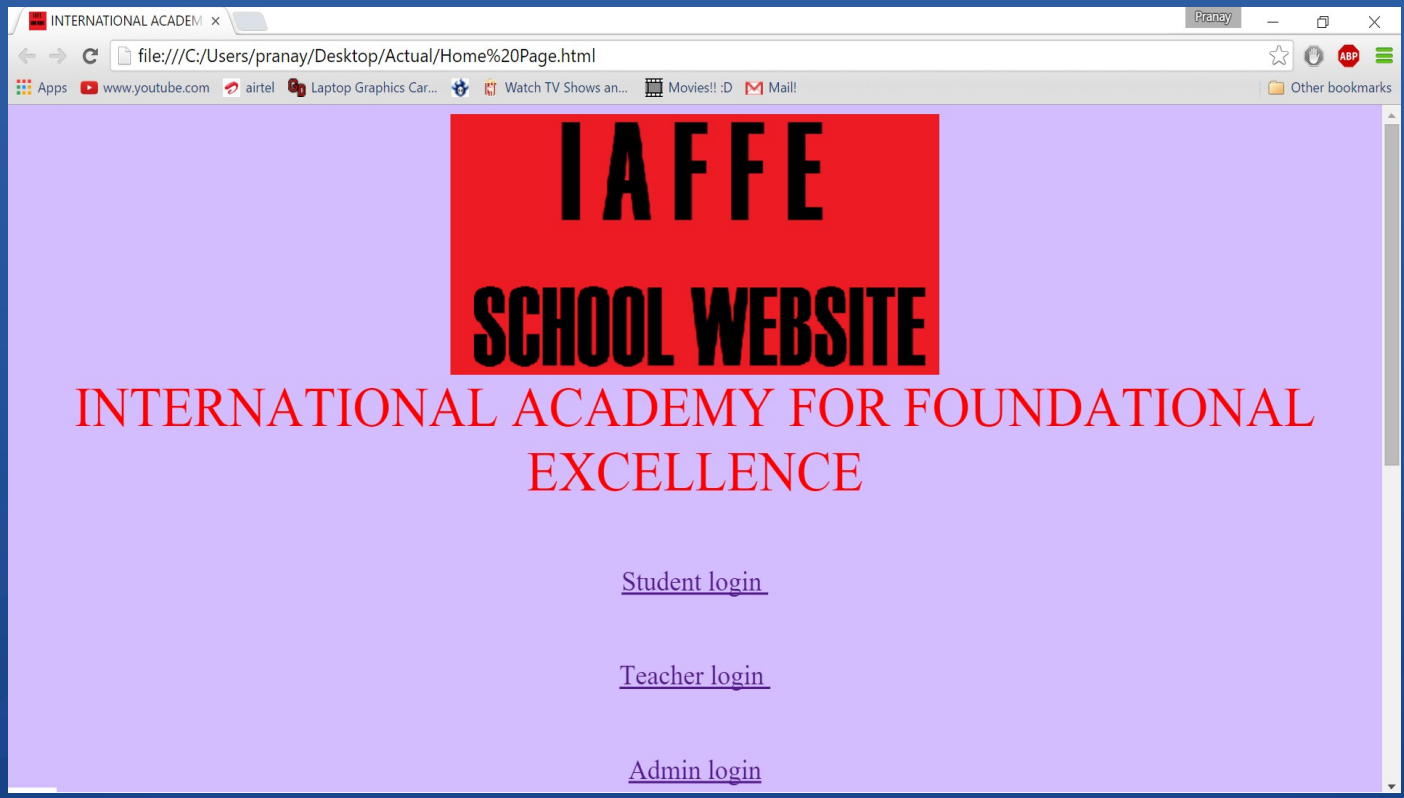
SCHOOL INTRANET

COMPUTER SCIENCE PROJECT

Grade 9 – Pranay Venkatesh

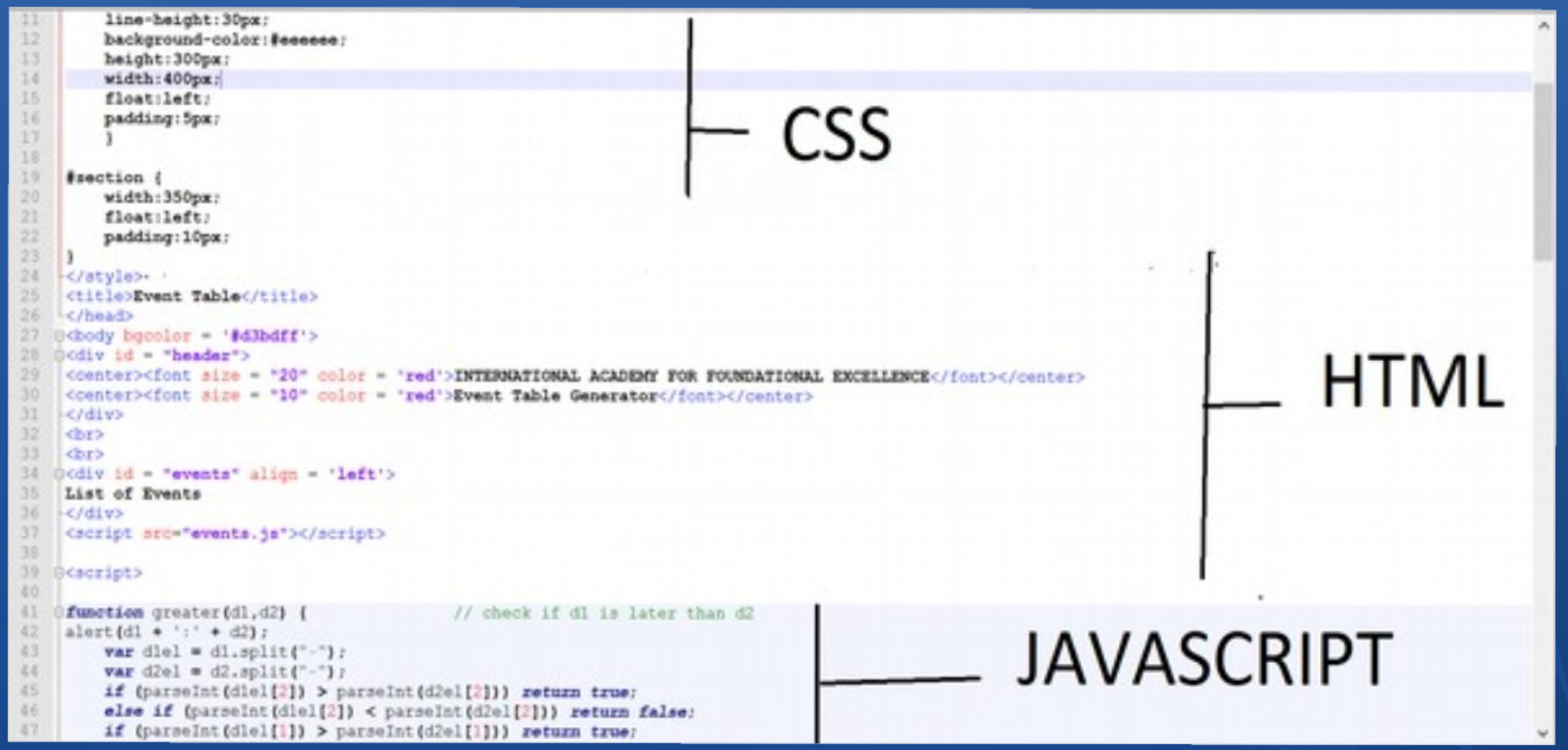
Topic

- Topic- Creating a website in html
- My website- A school website which allows students, teachers, administrators and visitors to view specific information.



Tools

- The tools used for this project are-
- HTML
- JAVASCRIPT
- CSS



Data Structures

- Session: Is a day + period (e.g. Mon 1st period)
- Classroom: Is a Class + Section (e.g. IV A)
- Vector: Is a 32 bit vector, each bit represents a subject – '0' if unavailable, '1' if available.
- Allocation: A vector with exactly one '1'
- Table: Is a M X N array of vectors; M = max no of sessions; N = max no of classrooms
- Current Table: Working table
- Choice Tables/splitting: Available choices to be explored.
- Stack of choices: Stack of choice tables.

Time Table

- The website can perform 1 major process- The formation of a Time Table.
- The time table below lists out the allotment of subjects for each period of all 4 classes in the school >>>MAKING

Time Table

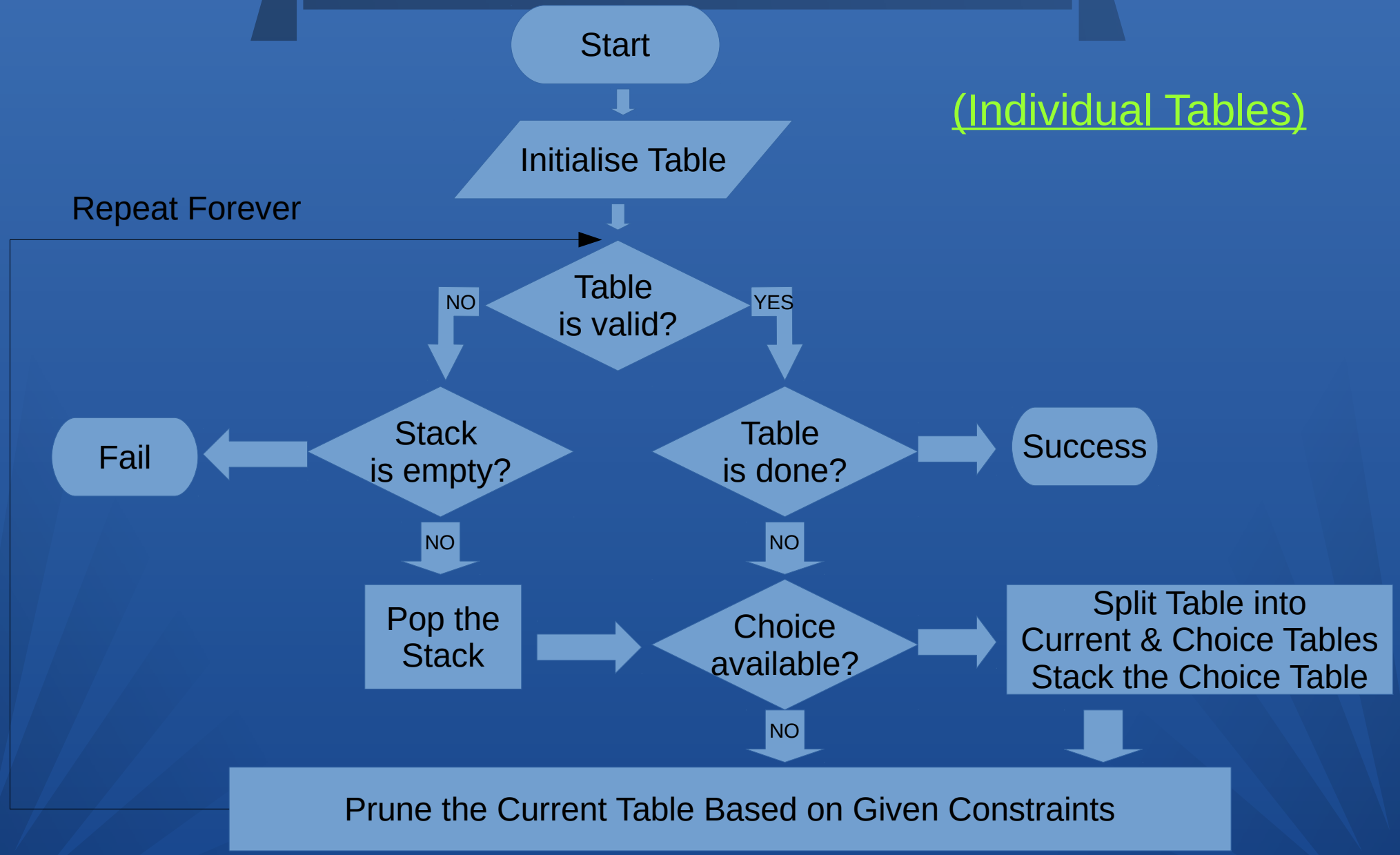
	Monday							Tuesday							Wednesday							Thursday							Friday						
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7	1	2	3	4	5	6	7
9A	MA	BI	PH	EN	CH	EN	MA	EN	PH	PH	LA	CH	CH	CH	PH	CH	MA	MA	BI	EN	EN	BI	MA	MA	EN	CH	EN	PH	MA	CH	PH	BI	CH	HI	CH
8A	HI	EN	CH	PH	BI	MA	EN	MA	HI	EN	PH	EN	HI	MA	EN	BI	EN	PH	MA	MA	CH	CH	HI	LA	LA	HI	HI	HI	BI	HI	MA	MA	LA	LA	HI
7A	PH	HI	EN	MA	MA	BI	CH	LA	LA	HI	EN	MA	EN	HI	MA	MA	CH	HI	EN	PH	BI	EN	EN	HI	MA	MA	PH	BI	CH	MA	HI	EN	MA	EN	LA
6A	EN	MA	MA	BI	EN	CH	PH	HI	MA	LA	HI	HI	LA	BI	HI	EN	BI	EN	CH	HI	MA	MA	LA	PH	HI	EN	MA	LA	EN	LA	LA	CH	HI	PH	MA

Keep Get Another

Making of time table

- The time table is made using a simple algorithm.
- Based on inputs entered by the administrator – i.e. the teacher of each subject for each class, the subjects each class has, and the number of hours for the teacher and the subject, it forms the master table.
- The flowchart following this slide describes the process of creating the time table. (flowchart)

Creation process



Individual tables

- Student Time Table: (go back)
- Scan one row of the Table data structure and format the entries into a 2D table with periods as columns and days as rows
- Teacher Time Table:
- Scan one column of the Table data structure. There can be at most one entry for any of the subjects that is allocated to the teacher.
- Time tables are in the form of **one html file** for each teacher and one for each class

Time Table for Seetha

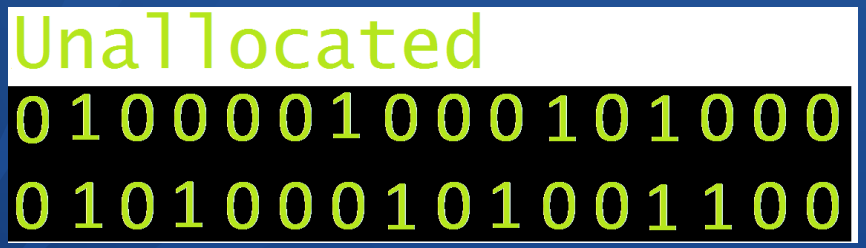
	1	2	3	4	5	6	7
Monday	6A/HI	7A/HI	Free	6A/HI	7A/HI	6A/HI	8A/HI
Tuesday	6A/HI	Free	Free	Free	6A/HI	Free	Free
Wednesday	Free	Free	Free	Free	9A/HI	8A/HI	Free
Thursday	9A/HI	7A/HI	8A/HI	7A/HI	7A/HI	6A/HI	6A/HI
Friday	6A/HI	Free	Free	8A/HI	7A/HI	8A/HI	9A/HI

Time Table for class 9A

	1	2	3	4	5	6	7
Monday	MA	EN	CH	MA	PH	BI	BI
Tuesday	EN	CH	MA	PH	MA	BI	EN
Wednesday	BI	CH	EN	MA	HI	PH	EN
Thursday	HI	BI	PH	BI	MA	BI	LA
Friday	EN	CH	MA	BI	EN	PH	HI

Vector

- The vector is an integer having 32 bits, each bit having a value of 1 or 0.
- The first bit is used to identify that the session has one subject allocated.
- The other 31 bits are used to identify whether a subject is available or not.
- 1 means that the subject is available and 0 means unavailable. (go back)

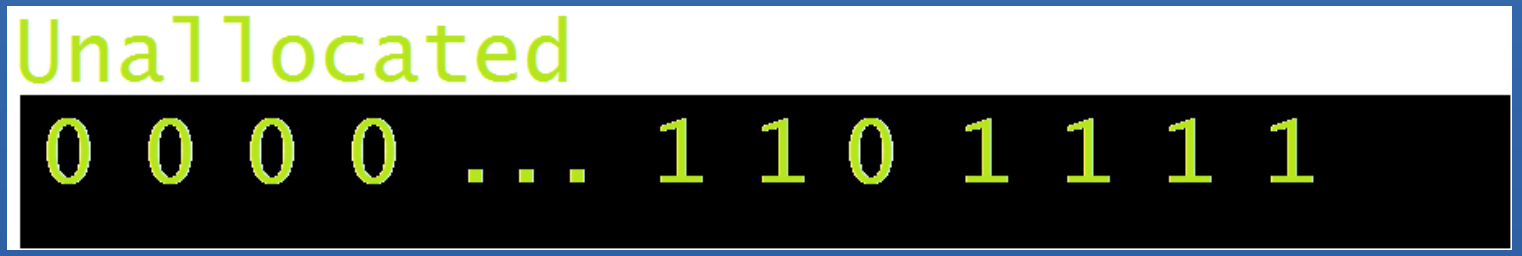


Splitting

- In a cell where the available choices is more than 1, the table gets split into the current and choice table.
- 1 value is picked randomly from a cell with the least number of choices and allocated to the cell in the current table.
- In the choice table, the remaining options are left and the table in pruned.
- (example)

Example of Splitting

Unallocated Current Table entry



SPLIT / MODIFICATION

Allocated Current Table entry

Choice Table entry

(go back)

Pruning

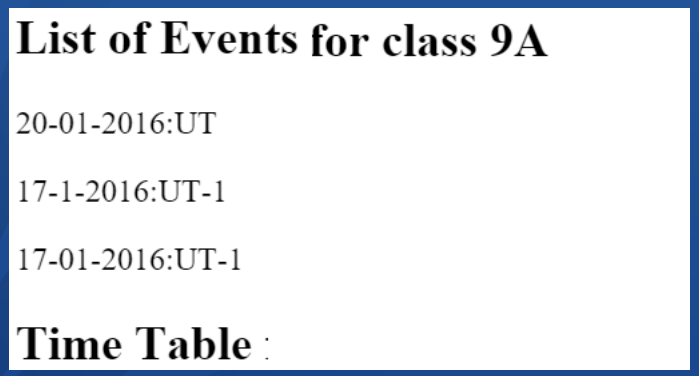
- In order to meet the given constraints, the function “prune()” is applied.
- “prune()” eliminates choices which do not meet constraints.
- For example, prune teacher constraints makes sure that the teacher can only teach one class per session.

```
function prune(cr,sn) {                    // prunes the table entries based on a set of constraints
    if (currTable.getDone(cr,sn)) return;
    currTable.setDone(cr,sn);
    teacherConstraint(cr,sn);              // apply the teacher constraints
    teacherTooManyClassesConstraint(cr,sn);     // if teacher has been teaching continuously for some time
    subjectDoneConstraint(cr,sn);          // check if the number of hours/week of the subject is done
//  sameSubjectRepeatConstraint(cr,sn);         // Same subject can't repeat more than twice per day
    sameSubjectDistributedConstraint(cr,sn);
                                           // Same subject can't repeat in neighbouring days ("6A"h/wk subjects)
}

function teacherConstraint(cr,sn) {        // teacher can be allocated to only one classroom per session
    var subject = findSubject(currTable.get(cr,sn)); // get the single subject allocated to cell
    var teacher = Allocation.allocTable[cr][subject].teacher;
                                           // find teacher associated with this class/subject

    var tSubjects = Allocation.subjects(teacher);
                                           // tSubjects will hold the subjects taught by this teacher

    for (var i=0; i<numCRs; i++) {         // remove any subject allocated to this teacher from the session
        if (i == cr) continue;             // don't do anything if it is the current classroom
        currTable.set(i,sn,currTable.get(i,sn) & (~tSubjects)); // remove tSubjects from the cell
        if (singleChoice(currTable.get(i,sn))) prune(i,sn); // prune from cell <i,sn>
    }
}
```

Event List

- Event list is entered by an administrator.

Events are then allotted to classrooms and teachers



Logins

- There are three basic logins for 3 different purposes and 3 different kinds of users.
- Teacher login – Teachers alone can see their events and time table.
- Student Login – Students can see their class time table and class event list.
- Administrator Login – The administrators can generate time tables and event lists.

Summary

- The website allows 3 logins – student, teacher, admin
- The admin can generate global event lists and time tables.
- These can be viewed individually by teachers and students of a class as a whole.

THANK YOU