

## HOW TO BE IN TWO PLACES AT ONCE?

Remember having lessons, classes, practices, and rehearsals as a kid?

Between the piano, dance, soccer, and acting, schedules get full, and conflicts arise!

Our team of industrial engineering students has developed a solution for local businesses.

## MANUAL LESSON SCHEDULING IS COMPLEX

Joyful Sounds is a premier music studio known for excellence in Nova Scotia, offering...


Private Lessons    Kindermusik    Group Classes    Music Camps

400+ Students    10+ Teachers    10 Rooms    10+ Instruments

Piano    Guitar    Voice    Drums    Fiddle    Ukulele    Brass    Winds

## SCHEDULING REQUIREMENTS

- Schedule Siblings at the Same Time
- Schedule Multi-Instrument Student Lessons Back-to-Back
- Reserve the Same Time and Teacher as Last Year
- Accommodate Annual Changes to Family Schedules
- Continue Accommodating Family Loyalty
- Accommodate Multiple Family Contacts
- Schedule All Lesson Requests
- Resolve Scheduling Conflicts
- Personalized Phone Calls
- Create a New Master Schedule each Semester
- Create Individual Teacher Schedules



Please select as much availability as possible

← Scroll →

Availability

Please indicate when the student would be available for this lesson. Selecting lots of checkboxes increase our ability to schedule a preferred lesson time.

	4:00pm	4:30pm	5:00pm	5:30pm	6:00pm	6:30pm	7:00pm	7:30pm	8:00pm
Monday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tuesday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wednesday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thursday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Friday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saturday	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## SAMPLE OUTPUT

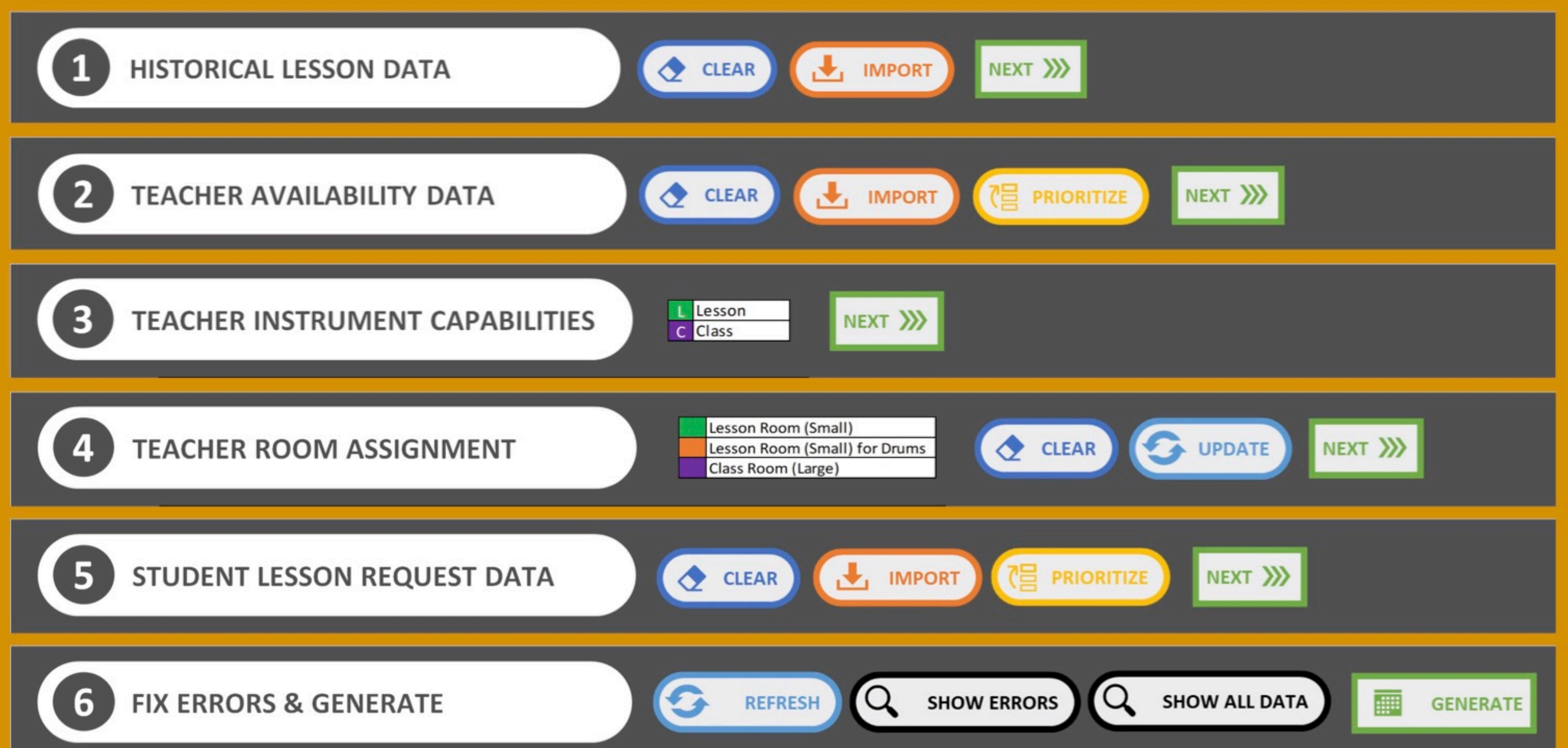
Teacher Schedule							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
9:00 AM							
9:15 AM							
9:30 AM							
9:45 AM							
10:00 AM							
10:15 AM							
10:30 AM							
10:45 AM							
11:00 AM							
11:15 AM						Student H (Piano)	
11:30 AM							
11:45 AM							
12:00 PM							
12:15 PM							
12:30 PM							
12:45 PM						Student F (Piano)	
1:00 PM							

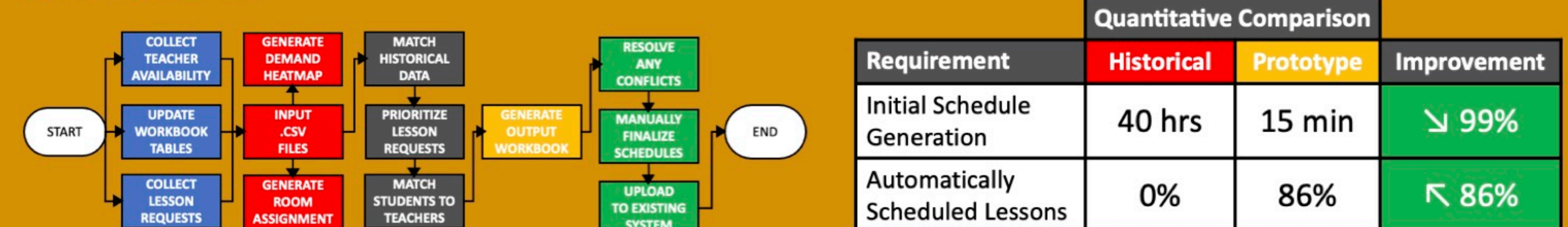
Student Name	Lesson Time	Lesson Day	Lesson Length	Instrument	Availability Given
Student A	18:45	F	30	Piano	15
Student B	19:30	M	30	Piano	8
Student C	18:30	W	30	Piano	8
Student D	19:00	W	30	Piano	8
Student E	18:00	F	45	Piano	8
Student F	12:30	S	30	Piano	8
Student G	18:30	M	30	Piano	6
Student H	11:00	S	45	Piano	6
Student I	19:00	M	30	Piano	2
Student J	18:00	Th	30	Piano	2

## NEW SOFTWARE DESIGN AND CAPABILITIES

- Automatically reserves the same time and teacher as last year for returning students
- Otherwise, it automatically checks all availability with the same teacher as last year
- Otherwise, it automatically checks other applicable teachers in order of seniority
- Attempts to schedule siblings together
- Attempts to schedule multi-lesson student lessons together
- Proposes alternative lesson times for unmatched students
- Predicts the most popular timeslots for lessons each day for teacher scheduling
- Generates a call list for personalized scheduling conflict resolution



## RESULTS



Teacher Name	Availability (hours)			Scheduled Availability (hours)						
	Total	Booked	Fill Rate	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
Teacher A	17	5	23%	0	4	4	4.5	0	4.5	
Teacher B	12	11	48%	1	2.5	4	2.5	0	2	
Teacher C	11	3	21%	0	0	1.25	3.25	5	1.5	
Teacher D	3.5	9	72%	0.5	0	0	1.5	0	1.5	
Teacher E	14	10.5	43%	0.75	1.75	4.25	3.5	3.75	0	
Teacher F	12	5	29%	5.5	1	0	3.25	2.25	0	
Teacher G	7	5	42%	0	0	3.5	3.5	0	0	
Teacher H	9	2.5	22%	0	1	3	0	0	5	
Teacher I	7.5	5.5	42%	0.5	0	1	1.5	0.75	3.75	
Teacher J	4.5	10.5	70%	0	0.25	0	0	1.5	2.75	
Teacher K	7	12.5	64%	1.75	2.25	3	0	0	0	
Teacher L	13.5	6.5	33%	4.75	0	0	3.5	4	1.25	
Teacher M	2.5	0	0%	0	1.5	1	0	0	0	

Lessons Processed	176	100%
Lessons Scheduled	152	86%
with previous teacher	122	80%
with different teacher	30	20%
Lessons Not Scheduled	24	14%
no availability match	19	79%
teacher schedule conflict	0	0%
no teacher found	5	21%