ETM
ENGINEERING & TECHNOLOGY MANAGEMENT

Optimization of Staffing Schedule At SHARC

(Shute Park Aquatic and Recreation Center)

ETM 540- Operation Research
Winter, 2013
Instructor- Dr. Timothy Anderson

Course Title: **Operations Research**
Course Number: **ETM40/640**
Instructor: **Dr.Anderson**
Term: **Winter**
Year: **2013**
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ETM OFFICE USE ONLY
Report No.:
Type: Student Project
Note:

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Executive Summary

Scheduling employee's staff is a crucial part of the operations of any organization. The organization must be efficiently schedule the staff to meet the continuous and potentially changing business demands. Staff scheduling becomes challenging when the need to balance various personnel shifts and try to accommodate their preferences.

In our report, we have attempted to address the lifeguard scheduling problem at Shute Park Aquatic and Recreation Center (SHARC). The aquatic center offers a variety of classes all year around for all age groups. The lifeguards and swim instructors are part-time employees and mostly students, over 16 years of age. The primary metrics used to schedule lifeguard staff are availability of personnel, avoid double booking when already working in other areas of SHARC, gender diversity, performance, and assessment by supervisor based on previous history. There are situations of last minute cancellations and thus a substitute has to be scheduled for those emergency situations. Currently the SHARC manager uses Microsoft Word for scheduling lifeguards. This paper attempts to propose a scheduling tool based on excel to cope with the emergency substitute scheduling of the lifeguards and document the process rather than relying on a person's memory. Through this paper we attempt the following:

1) To address the issue of last minute scheduling and find a reliable person to cover.
2) To develop a model that be used for automation of life guard scheduling process.
3) To provide an Excel based program replacing the current word based for automated scheduling at no extra cost.
4) To achieve scheduling of personnel at least cost.

Introduction

Hillsboro Parks & Recreation's Shute Park Aquatic & Recreation Center (SHARC), offers the community an aquatics facility with three pools and a spa, cardio/weight room, group exercise room, cycling room for spin classes, massage therapy, sauna, personal training, a Kid Fit childcare room, and a variety of aquatic and dry land recreational classes [1].

Water amenities at SHARC include two indoor pools, a spa pool and a sauna as well as an Outdoor Pool which is closed from September-June. The outdoor pool is used by the Hillsboro Heat and the Hillsboro School District during the off season. [2]. The pools are scheduled for different activities and offer classes for different age groups. Swim lessons, lap swim, rec swim, swim teams, swim lessons also rentals are available in the facility [3]. All of those events require lifeguards. The popularity of swimming pools is changed by different seasons. Different times of the year bring different scheduling requirements. In this study, we analyzed and optimized different lifeguard scheduling options depending on their availability and characteristics.

Literature Research

Operations Research is a wide field and research papers abound for solving this type of issue. In the market we have many formulations and software packages able to calculate the optimal solution for a scheduling problem. For our project we used MS Excel and integer programming for optimization.

Our study is a complex scheduling problem because it involves multiple objectives; such as minimizing the lifeguard cost while choosing them based on their availability and other preferences. To deal with these issues we decided to apply goal programming (GP) to our scheduling problem. Goal programming (GP) is a multi-criteria technique that makes it possible to build mathematical programming models consisting of linear or nonlinear functions and continuous or discrete variables, in which all functions have been transformed into goals [4]. The paper "A goal programming approach to estimating performance weights for ranking firms

[4]" proposes applying multiple criteria methods for combining a firm's performance indices into a coherent whole and for enabling implementation by computer programs designed to process business and financial information. For this purpose, they addressed 3 case studies Greek pharmaceutical companies, Chinese textile manufacturers and a group of companies listed on Spanish Ibex-35. In their model, they calculated the weights by means of a restricted regression in which the similarity between the single criterion performance measures and the multi criteria performance is maximized.

We also found a very similar research paper by Bouarab (et. all) [5] and the objective in it consists of minimizing total costs while maximizing the nurses' preferences and requests, and equally distributing workload between nurses. In addition, the constraints show some similarities as well. They put constraints for demand for each shift, shifts that can be assigned to each particular nurse and maximum number of consecutive days of work. To build the model, they respectively collected the preferences, sketched the schedule, corrected, posted and adjusted the schedule. Their objective function constituted of three terms. The first term specifies that rotation from one shift to another be minimized. The second one is a quadratic term that ensures that penalty increase rapidly when moving away from quota requirements and finally the third ensures that those preferences are maximized [5]. The project has been very helpful to apply leanings in operations research and optimizing resources for our study.

Another similar study that we found was related to library staff scheduling. This paper [6] has been a good reference since it addresses some of the requirements similar to that of SHARC like there must be at least a minimum number of lifeguards present at any time, the assignment on the basis of availability etc. The paper also outlines how they have used the various features of the spreadsheet like cell protection, referencing to perceive the availability of the persons in the model. It also provides a step by step overview of how the various constraints apply on the model and the optimal integer solution schedule is generated. This has been very helpful in understanding how we should formulate our objective and constraints.

Data Gathering

We scheduled a few meetings with the SHARC scheduling manager for understanding the problem and collect primary data. We met with The Recreation Program Supervisor and obtained several documents (shown in the appendix section) related to -

1. Life Guard Schedule (March 2013)

2. WCS (part time supervisors) schedule (March 2013)

3. Summer Schedule of the lifeguards. (March 2013)

4. The availability form which is filled by the lifeguards for their preferred availability. (March 2013)

5. Kids Fit, Concession, Cashier schedules (March 2013)

The above schedules and information helped use to define our objective and constraints.

Current Approach

Currently, the scheduling Manager uses a word template to schedule all the lifeguards. The schedules are prepared by her on a monthly basis. After all the staff scheduling in other departments (WCS, Concessions, kids fit, cashier) have been completed, she starts to work on the Life Guard portion of the scheduling. She finishes her schedule by the fifteenth of each month. She provides this lifeguard schedule to the swim instructor supervisor to schedule the swim instructors. The biggest challenge is to find suitable substitutes for the last minute cancellations. She uses her experience to find and call replacements to cover those vacated spots; most of the information is by memory, which makes it a nightmare when she goes on vacation, for the supervisor covering for her. For emergency scheduling she considers proximity, availability of transportation, reliability of the person, and the number of hours assigned to them during the week.

The flowchart below shows the current scheduling model in use today.

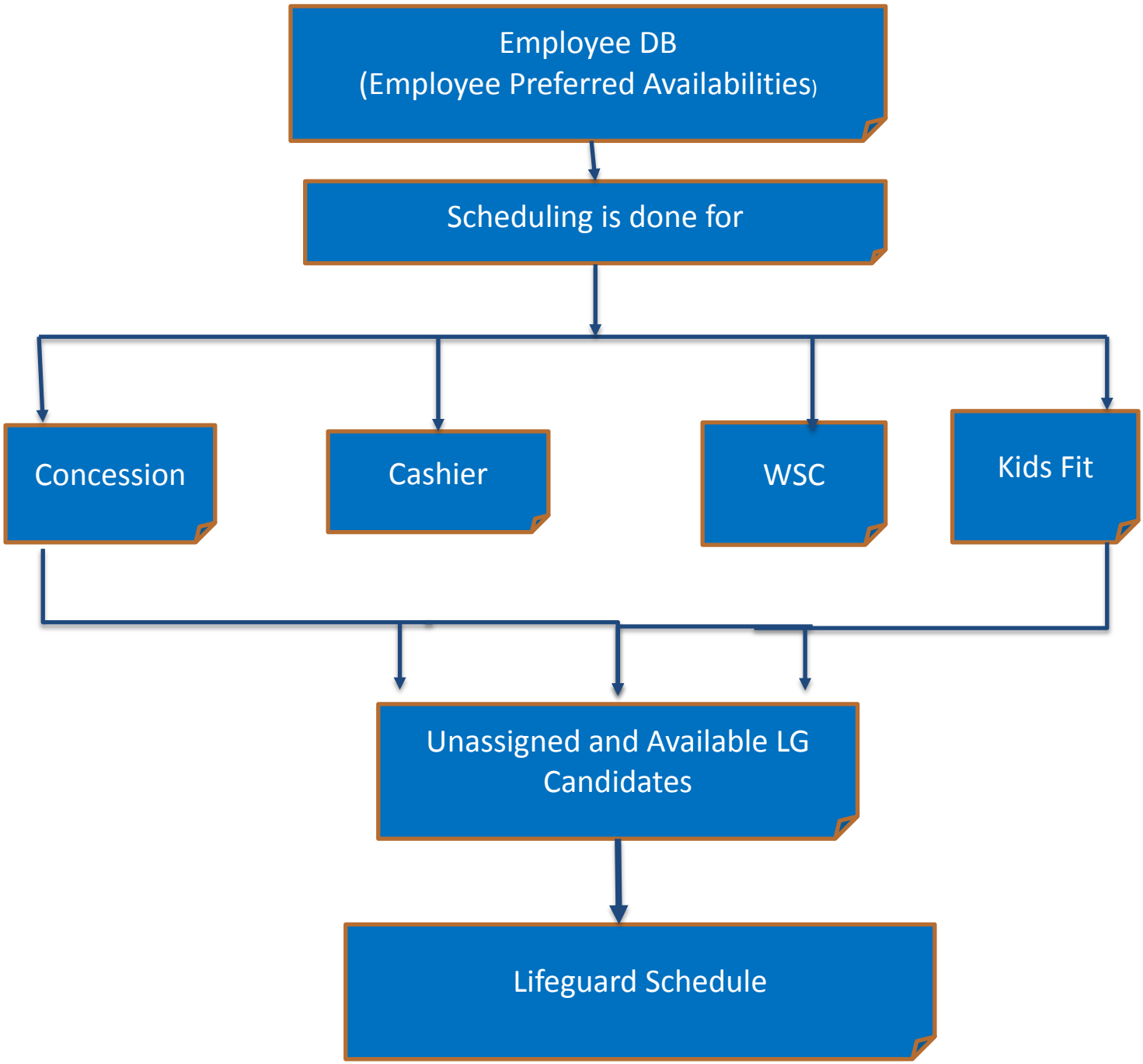

Figure 1. Current Process

Model

Parameters:

- j: shifts j ∈{Monday-Thursday:5.15am-9am, 9am-11am, 11am-1pm, 1pm-4pm, 4pm-7pm, 6.45pm-9.15pm}
- i: person i ∈{1,2,3,…….,75}
- D_j : Demand for j^{th} shift ∈{Integers}
- A_{ij} : person i assigned for j^{th} shift ∈{Binary}
- P_{ij} : Worker i preference to work on shift j ∈{Binary}
- T_i : Total Hours assigned to other department. ∈{Integers}

Decision variable:

A_{ij} : person assigned for j^{th} shift

Objective:

In our scheduling problem, we have multiple goals. To fit those multiple goal to our model, we identify different goals and we assigned weights for each goal.

- Minimize
  - G_1 = Minimize going over demand
  - G_2 = Minimize breaking continuous segments going on preference/availability

Objective function: min (W_1 G_1 + W_2 G_2)

$$min \sum_{i=1}^{2} W_i G_i$$

$$G_1 = \sum_{\text{j=5.15am-9am}}^{\text{6.45pm-9.15pm}} (\sum_{i=1}^{75} A_{ij} - D_j)$$

$$G_2 = \sum_{i=1}^{75} \sum_{\text{j=9am-11am}}^{\text{4pm-7pm}} A_{ij}\,, where\ A_{i(j-1)} = 1\ and\ A_{ij} = 0\ and\ A_{i(j+1)} = 1$$

Constraints:

1) **Demand Constraint**: Total people assigned for shift *j* should be greater than equal to demand for j^{th} shift.

$$\sum_{i=1}^{75} A_{ij} \geq D_j \quad \forall\, j$$

2) **Staff Preference**: Worker *i*'s availability/preference to work on shift *j* should be greater than equal to that person's assignment for j^{th} shift, i.e. do not assign an employee into a timeslot that they have indicated that they are unavailable.

$$P_{ij} - A_{ij} \geq 0\ \forall\ \text{i, j}$$

3) **Maximum Hours Allowed per week**: Worker *i*'s assignment to work should not exceed 19 hours.

$$\sum_{j=5:15am-9am}^{6:45pm-9:15pm} A_{ij} + T_i \leq 19\ \forall i$$

4**) Minimum Hours:** Worker *i*'s assignment to work should not be less than 2 hours.

$$\sum_{\text{j=5.15am-9am}}^{\text{6.45pm-9.15pm}} A_{ij} \geq 2\ \forall i$$

5) **Reliable Employee for Emergency Scheduling:** Schedule at least one reliable employee into each shift *j*. Reliability R is defined as a score for employee *i*.

$$\sum_{i=1}^{75} A_{ij} \geq 1, where\ R(i) \geq 0.8\ \forall j$$

6) **Gender Balance for last timeslot of day:** Need at least one female employee at the last time slot of day. Gender G is identifies the gender of employee *i*.

$$\sum_{i=1}^{75} A_{ij} \geq 1,\ where\ G(i) = F\ and\ j = 6{:}45 - 9{:}15PM$$

7) **Gender Balance for last timeslot of day:** Need at least one male employee at the last time slot of day. Gender G is identifies the gender of employee *i*.

$$\sum_{i=1}^{75} A_{ij} \geq 1,\ where\ G(i) = M\ and\ j = 6{:}45 - 9{:}15PM$$

8) Binary Constraint

$$A_{ij} = binary$$

9) Non-negativity constraint

$$A_{ij} \geq 0$$

Excel Outputs

Step 1- Employee Data Setup

We defined the parameters based on the data and information provided by the Scheduling Manager. She uses 2 key pieces of information, their availability and a measure of their efficiency. The employee efficiency score is based upon the employee's proximity to work, transportation mode, past performance, response time and skill level. At least one reliable lifeguard needs to be present at each shift and the score can be used to determine the sequence of calling in substitutes. Specifically for the last time slot of the day, she also needs to make sure that there is at least one male and one female lifeguard on duty.

This scoring helped us to generate the efficiency scores and thus the employees who were having a higher efficiency score are considered as reliable. This will enable the scheduling

supervisor to save time to figure out whom to call and schedule for the last minute needs. The employee data setup is shown in Figure 2.

										Employee Reliability Scoring				
										Performance data				
				Preference (i) for Mon-Thu Shift (j)						Input			Output	
Employee ID	First Name (i)	Gender	Other Assignment (T	5:15-9AM	9-11AM	11AM-1PM	1-4PM	4-7PM	6:45-9:15PM	Past Performance(X1)	Distance(X2)	Transportation(X3)	Skilllevel (y1)	Response Time(y2)
100	Amanda	F	0	1	1	1	0	0	0	3	2	2	3	2
101	Bailey	F	0	1	1	1	0	0	0	2	3	1	3	1
102	Carlos	M	0	1	1	1	0	0	0	3	3	2	1	3
103	Carlos G.	M	0	1	1	1	1	1	1	3	3	2	3	3
104	Casey	F	0	1	1	1	1	1	1	1	2	1	1	1
105	Chelsea	F	0	1	1	1	1	1	1	1	1	2	3	2
106	Courtney	F	0	1	1	1	1	1	1	2	1	2	1	2
107	Denise	F	0	1	1	1	1	1	1	3	3	2	3	3
108	Devin	M	0	0	0	0	1	1	1	2	3	2	3	3
109	Ellen	F	0	0	0	0	1	1	1	1	3	1	2	1
110	Ellen R.	F	0	0	0	0	1	1	1	1	3	1	3	2

		Input weights			utput Weigh		Linearized constraints												
Employee ID	First Name (i)	Past Performance(X1)	Distance(X2)	Transportation(X3)	Skilllevel (y1)	Response Time(y2)	ID#100	ID#101	ID#102	ID#103	ID#104	ID#105	ID#106	ID#107	ID#108	ID#109	ID#110	Weighted Input	Reliability Score
100	Amanda	0	0.167	0.333	0.278	0	-0.17	0	-0.89	-0.33	-0.39	0	-0.56	-0.33	-0.33	-0.28	0	1	0
101	Bailey	0	0.2	0.4	0.333	0	-0.2	0	-1.07	-0.4	-0.47	0	-0.67	-0.4	-0.4	-0.33	0	1	0
102	Carlos	-0	0.167	0.25	0	0.333	-0.17	-0.42	0	0	-0.25	0	0	0	0	-0.42	-0.08	1	1
103	Carlos G.	-0	0.167	0.25	-0	0.333	-0.17	-0.42	0	0	-0.25	0	0	0	0	-0.42	-0.08	1	1
104	Casey	0.2	0.2	0.4	0	0.6	-0.6	-0.8	-0.2	-0.2	-0.4	0	-0.2	-0.2	0	-0.6	0	1	0.6
105	Chelsea	0	0.2	0.4	0.333	0	-0.2	0	-1.07	-0.4	-0.47	0	-0.67	-0.4	-0.4	-0.33	0	1	0
106	Courtney	0	0.25	0.375	0	0.5	-0.25	-0.63	0	0	-0.38	0	0	0	0	-0.63	-0.13	1	1
107	Denise	-0	0.167	0.25	-0	0.333	-0.17	-0.42	0	0	-0.25	0	0	0	0	-0.42	-0.08	1	1
108	Devin	0	0.167	0.25	0	0.333	-0.17	-0.42	0	0	-0.25	0	0	0	0	-0.42	-0.08	1	1
109	Ellen	0	0.2	0.4	0.333	0	-0.2	0	-1.07	-0.4	-0.47	0	-0.67	-0.4	-0.4	-0.33	0	1	0
110	Ellen R.	0	0.2	0.4	0.333	0	-0.2	0	-1.07	-0.4	-0.47	0	-0.67	-0.4	-0.4	-0.33	0	1	0

Figure 2. Employee Reliability and Availability Chart

Step 2- Solver Setup

Once the employee data was setup, now we could start the solver. As we started with 75 employees, we immediately uncovered the limitation with Excel solver of exceeding the number of variables, so we decided to validate the model using a smaller dataset and reduced it to 10 employees. The Excel Solver Setup is shown in Figure 3.

Objective Function

Goal			Weight	
G1	3	1	W1	Cost of going over demand
G2	0	-100	W2	Cost of assigning over discontinuous segments of shift
Total Cost	3			

		Decision Variables						G2							Constraints								
		Aij = Assignment (i) to Mon-Thu Shift (j)						Discontinuous								Diff (Preference (i) for Mon-Thu Shift (j)-Aij)							
Employee ID	First Name (i)	5:15-9AM	9-11AM	11AM-1PM	1-4PM	4-7PM	6:45-9:15PM	5:15-9AM	9-11AM	11AM-1PM	1-4PM	4-7PM	6:45-9:15PM	Discontinuous	Total assignments (i)	5:15-9AM	9-11AM	11AM-1PM	1-4PM	4-7PM	6:45-9:15PM	Efficiency	Gender
100	Amanda	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0.00	F
101	Bailey	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	0	0	0	0.00	F
102	Carlos	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	1.00	M
103	Carlos G.	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1.00	M
104	Casey	0	0	0	0	1	1	0	0	0	0	0	0	0	2	1	1	1	1	0	0	0.60	F
105	Chelsea	1	0	0	0	0	1	0	0	0	0	0	0	0	2	0	1	1	1	1	0	0.00	F
106	Courtney	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1.00	F
107	Denise	1	0	0	0	0	1	0	0	0	0	0	0	0	2	0	1	1	1	1	0	1.00	F
108	Devin	0	0	0	1	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	1.00	M
109	Ellen	0	0	0	1	1	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0.00	F
110	Ellen R.	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0.00	F

Constraints											
	Supply	2	2	2	2	4	6	G1			
				>=							
	Demand	2	2	2	2	4	6				
	Efficient	1	1	1	1	1	2	>=	0.8		
	Gender (F)						6	>=	1		
	Gender (M)						0	>=	1		

								Total	0		

Figure 3. Solver Setup for Lifeguard Scheduling

Step 3 – Substitute Schedule

The scheduling supervisor uses the employee reliability as the main factor in determining the calling tree to use when a scheduled employee is unable to work; this is easily derived by identifying those employees who have not been assigned to a timeslot and using their reliability factor as the sequence to call down the calling tree. We used the Sum of A_{ij} (for those A_{ij} == 0) and Reliability factor of Employee *i* with the conditional formatting feature in Excel to derive this information. The result is shown in Figure 4.

Substitute schedule							
		Aij = Assignment (i) to Mon-Thu Shift (j)					
Employee ID	First Name (i)	5:15-9AM	9-11AM	11AM-1PM	1-4PM	4-7PM	6:45-9:15PM
100	Amanda	0	0	N/A	0	0	0
101	Bailey	0	N/A	0	0	0	0
102	Carlos	1	1	N/A	1	1	1
103	Carlos G.	1	N/A	1	1	1	1
104	Casey	0.6	0.6	0.6	0.6	N/A	N/A
105	Chelsea	N/A	0	0	0	0	N/A
106	Courtney	1	1	1	1	1	N/A
107	Denise	N/A	1	1	1	1	N/A
108	Devin	1	1	1	N/A	N/A	1
109	Ellen	0	0	0	N/A	N/A	N/A
110	Ellen R.	0	0	0	0	N/A	N/A

Figure 4. Substitute schedule

Step 4 - Analyzing results

We decided to experiment using different weight values for the G1 and G2 as well as analyze the performance results. We ran the same model 7 times with different weight values. The key was that the assignments did not change significantly perhaps based upon a combination of the small employee pool and the tight constraints. The results are shown in Figures 5 and 6.

Trial	G1	W1	G2	W2	Objective	Time to solv	Iterations	Subproble
Run 1	3	100	0	1	300	0.047	46	0
Run 2	3	1	0	1	3	0.047	46	0
Run 3	3	1000	0	1	3000	0.062	46	0
Run 4	3	1	0	-1	3	0.062	46	0
Run 5	3	1	0	-100	3	0.063	46	0
Run 6	3	0	0	-100	0	0.047	46	0
Run 7	3	1	0	-100	3	0.078	46	0

Figure 5. Iteration results

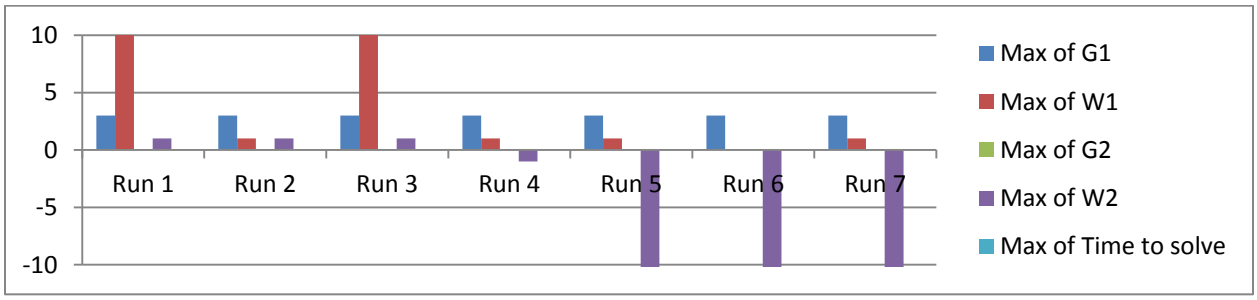

Figure 6. Iteration results graph

Conclusion

The model developed by our team for SHARC will enable the supervisors to choose from a list of reliable lifeguards for emergency scheduling. Our model has several advantages over the current approach-

- We will be having a proper documented schedule rather than having to schedule by memory.
- The model can be used without any additional cost.
- It will enable the users to save time and is simple to use.
- Quickly schedule the staff for any month.
- The model will provide the flexibility to various people to schedule their staff.
- The excel model can be extended to incorporate further future preferences.
- By providing weights to various parameters, a list of most reliable employees for emergency scheduling can be generated.

Our project allowed us to solve a real world problem using Optimization techniques. Given the ten week class, it was until week Six when our team began to understand how to implement and solve this type of problem. We ran into multiple issues, including Excel solver limitation on the number of variables it allows; to overcame that obstacle, and still be able to use excel our team reduced the data set to ten employees and scheduled employees for only one day.

If a team wanted to extend and provide a more complete solution, they could incorporate the model into GLPK or some other software package which allowed for the whole data set to be run. A second improvement to our model could be the addition of an automated "paging or texting" script to call or text the individuals determined to be suitable replacements.

References

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Appendix

Hillsboro Parks & Recreation

Shute Park Aquatic and Recreation Center
KID FIT ROOM Schedule: MARCH 2013

SHARC

					1	2
Opening					Friday	Saturday
*Shifts beginning at 7:45 a.m. give the Cashier a break from 7:45 – 7:55 a.m. before opening Kid Fit at 8:00 a.m.					• **7:45a*** – 1:30p: Mariah K. • 3:55p – 6:35p: Kassandra	• 7:55a - 11:05a: Carlos
3	4	5	6	7	8	9
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Kid Fit Room is CLOSED on Sundays.	• **9:00a** – 1:30p: Ellen R. • 3:55p – 7:50p: Robin G.	• **9:00a** – 1:30p: Carlos G. • 3:55p – 7:50p: Meigs	• **9:00a** – 1:30p: **OPEN** • 3:55p – 7:50p: **OPEN**	• **7:45a*** – 1:30p: Ellen R. • 3:55p – 7:50p: Meigs	• **7:45a*** – 1:30p: Mariah K. • 3:55p – 6:35p: Kassandra	• 7:55a - 11:05a: Carlos
10	11	12	13	14	15	16
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Kid Fit Room is CLOSED on Sundays.	• **9:00a** – 1:30p: Ellen R. • 3:55p – 7:50p: Robin G.	• **9:00a** – 1:30p: Carlos G. • 3:55p – 7:50p: Meigs	• **9:00a** – 1:30p: **OPEN** • 3:55p – 7:50p: **OPEN**	• **7:45a*** – 1:30p: Ellen R. • 3:55p – 7:50p: Meigs	• **7:45a*** – 1:30p: Mariah K. • 3:55p – 6:35p: Kassandra	• 7:55a - 11:05a: Carlos
17	18	19	20	21	22	23
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Kid Fit Room is CLOSED on Sundays.	• **9:00a** – 1:30p: Ellen R. • 3:55p – 7:50p: Robin G.	• **9:00a** – 1:30p: Carlos G. • 3:55p – 7:50p: Meigs	• **9:00a** – 1:30p: **OPEN** • 3:55p – 7:50p: **OPEN**	• **7:45a*** – 1:30p: Ellen R. • 3:55p – 7:50p: Meigs	• **7:45a*** – 1:30p: Mariah K. • 3:55p – 6:35p: Kassandra	• 7:55a - 11:05a: Carlos
24/31	25	26	27	28	29	30
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Kid Fit Room is CLOSED on Sundays.	Spring Break • **7:45a*** – 1:30p: Ellen R. • 3:55p – 7:50p: Steph	Spring Break • **9:00a** – 1:30p: Carlos G. • 3:55p – 7:50p: Steph	Spring Break • **7:45a*** – 1:30p: Joseph • 3:55p – 7:50p: Carlos	Spring Break • **9:00a** – 1:30p: Ellen R. • 3:55p – 7:50p: Joseph	Spring Break • **7:45a*** – 1:30p: Mariah K. • 3:55p – 6:35p: Kassandra	• 7:55a - 11:05a: Steph

Hillsboro Parks & Recreation

Shute Park Aquatic and Recreation Center
CONCESSIONS Schedule: MARCH 2013

SHARC Shute Park Aquatic & Recreation Center

31 **Sunday** **Easter Sunday** • 8:00a-2:30p: Cashier • 2:30p-6:45p: **Jori**	**Closing:** *Begin preliminary cleaning before 9:00 p.m.; do a final cleaning from 9:00 – 9:15 p.m. so can sell items to patrons as leaving Rec Swim. Cash out at 9:15 p.m.*				**1** **Friday** • 5:30a-6:30p: Cashier • 6:30p-9:30p: Kass.	**2** **Saturday** • 7:00a-12:15p: Cashier • 12:15p-4:30p: Carlos • 4:30p-7:45p: Chelsea
3 **Sunday** • 8:00a-2:30p: Cashier • 2:30p-6:45p: Steph	**4** **Monday** • 5:30a-4:30p: Cashier • 4:30p-9:30p: Nathan	**5** **Tuesday** • 5:30a-4:30p: Cashier • 4:30p-9:30p: Carlos	**6** **Wednesday** • 5:30a-4:30p: Cashier • 4:30p-9:30p: Korte	**7** **Thursday** • 5:30a-4:30p: Cashier • 4:30p-9:30p: Chelsea	**8** **Friday** • 5:30a-6:30p: Cashier • 6:30p-9:30p: Kass.	**9** **Saturday** • 7:00a-12:15p: Cashier • 12:15p-4:30p: Carlos • 4:30p-7:45p: Chelsea
10 **Sunday** • 8:00a-2:30p: Cashier • 2:30p-6:45p: Steph	**11** **Monday** • 5:30a-4:30p: Cashier • 4:30p-9:30p: Nathan	**12** **Tuesday** • 5:30a-4:30p: Cashier • 4:30p-9:30p: Carlos	**13** **Wednesday** • 5:30a-4:30p: Cashier • 4:30p-9:30p: Korte	**14** **Thursday** • 5:30a-4:30p: Cashier • 4:30p-9:30p: Chelsea	**15** **Friday** • 5:30a-6:30p: Cashier • 6:30p-9:30p: Kass.	**16** **Saturday** • 7:00a-12:15p: Cashier • 12:15p-4:30p: Carlos • 4:30p-7:45p: Chelsea
17 **Sunday** **St. Patrick's Day** • 8:00a-2:30p: Cashier • 2:30p-6:45p: Steph	**18** **Monday** • 5:30a-12:30p: Cashier • 4:30p-9:30p: Nathan	**19** **Tuesday** • 5:30a-4:30p: Cashier • 4:30p-9:30p: Carlos	**20** **Wednesday** • 5:30a-4:30p: Cashier • 4:30p-9:30p: Korte	**21** **Thursday** • 5:30a-4:30p: Cashier • 4:30p-9:30p: Chelsea	**22** **Friday** • 5:30a-12:30p: Cashier • **12:30p-3:30p: Ty** • 3:30p-6:30p: Cashier • 6:30p-9:30p: Kass.	**23** **Saturday** • 7:00a-12:15p: Cashier • 12:15p-4:30p: Carlos • 4:30p-7:45p: Chelsea
24 **Sunday** • 8:00a-2:30p: Cashier • 2:30p-6:45p: Steph	**25** **Monday** **Spring Break** • 5:30a-12:30p: Cashier • **12:30p-3:30p:** Steph • 3:30p-6:30p: Cashier • 6:30p-9:30p: Joseph	**26** **Tuesday** **Spring Break** • 5:30a-12:30p: Cashier • **12:30p-3:30p:** Steph • 3:30p-6:30p: Cashier • 6:30p-9:30p: Chelsea	**27** **Wednesday** **Spring Break** • 5:30a-12:30p: Cashier • **12:30p-3:30p:** Ty • 3:30p-6:30p: Cashier • 6:30p-9:30p: Kass.	**28** **Thursday** **Spring Break** • 5:30a-12:30p: Cashier • **12:30p-3:30p:** Carlos • 3:30p-6:30p: Cashier • 6:30p-9:30p: Kass.	**29** **Friday** **Spring Break** • 5:30a-12:30p: Cashier • **12:30p-3:30p:** Ellen • 3:30p-6:30p: Cashier • 6:30p-9:30p: Kass.	**30** **Saturday** • 7:00a-12:15p: Cashier • 12:15p-4:30p: Steph • 4:30p-7:45p: Chelsea

Hillsboro Parks & Recreation

Shute Park Aquatic and Recreation Center
CASHIER Schedule: MARCH 2013

SHARC Shute Park Aquatic & Recreation Center

31: Sunday					1: Friday	2: Saturday
Easter Sunday • **7:45a-10:00a: Ty** • 10:00a-2:00p: Ty • 2:00p-7:15p: Chelsea					• 5:15a-10:00a: Carlos • 10:00a-5:00p: Sophie • 5:00p-9:45p: Ellen	• 6:45a-1:00p: Denise • 12:15p-4:45p: Chelsea • 4:15p-8:15p: Sophia
3: Sunday	**4: Monday**	**5: Tuesday**	**6: Wednesday**	**7: Thursday**	**8: Friday**	**9: Saturday**
• 7:45a-10:00a: Lori • 10:00a-2:00p: Steph • 2:00p-7:15p: Courtney	• 5:15a-11:00a: Shiante • 11:00a-5:00p: Sophie • 5:00p-9:45p: Carlos	• 5:15a-10:00a: Shiante • 10:00a-5:00p: Sophie • 5:00p-9:45p: Ellen	• 5:15a-9:00a: Shiante • 9:00a-5:00p: Sophie • 5:00p-9:45p: Carlos	• 5:15a-12:30p: Steph • 12:30p-5:00p: Sophie • 5:00p-9:45p: Korte	• 5:15a-10:00a: Carlos • 10:00a-5:00p: Sophie • 5:00p-9:45p: Ellen	• 6:45a-1:00p: Denise • 12:15p-4:45p: Chelsea • 4:15p-8:15p: Sophia
10: Sunday	**11: Monday**	**12: Tuesday**	**13: Wednesday**	**14: Thursday**	**15: Friday**	**16: Saturday**
• 7:45a-10:00a: Lori • 10:00a-2:00p: Steph • 2:00p-7:15p: Courtney	• 5:15a-11:00a: Shiante • 11:00a-5:00p: Sophie • 5:00p-9:45p: Carlos	• 5:15a-10:00a: Shiante • 10:00a-5:00p: Sophie • 5:00p-9:45p: Ellen	• 5:15a-9:00a: Shiante • 9:00a-5:00p: Sophie • 5:00p-9:45p: Carlos	• 5:15a-12:30p: Steph • 12:30p-5:00p: Sophie • 5:00p-9:45p: Korte	• 5:15a-10:00a: Carlos • 10:00a-5:00p: Sophie • 5:00p-9:45p: Ellen	• 6:45a-1:00p: Denise • 12:15p-4:45p: Chelsea • 4:15p-8:15p: Sophia
17: Sunday	**18: Monday**	**19: Tuesday**	**20: Wednesday**	**21: Thursday**	**22: Friday**	**23: Saturday**
St. Patrick's Day • **7:45a-10:00a: Steph** • 10:00a-2:00p: Steph • 2:00p-7:15p: Courtney	• 5:15a-11:00a: Shiante • 11:00a-5:00p: Sophie • 5:00p-9:45p: Carlos	• 5:15a-10:00a: Shiante • 10:00a-5:00p: Sophie • 5:00p-9:45p: Ellen	• 5:15a-9:00a: Shiante • 9:00a-5:00p: Sophie • 5:00p-9:45p: Carlos	• 5:15a-12:30p: Steph • 12:30p-5:00p: Sophie • 5:00p-9:45p: Korte	• 5:15a-10:00a: Carlos • 10:00a-5:00p: Sophie • 5:00p-9:45p: Ellen	• 6:45a-1:00p: Denise • 12:15p-4:45p: Chelsea • 4:15p-8:15p: Sophia
24: Sunday	**25: Monday**	**26: Tuesday**	**27: Wednesday**	**28: Thursday**	**29: Friday**	**30: Saturday**
• 7:45a-10:00a: Lori • 10:00a-2:00p: Steph • 2:00p-7:15p: Courtney	Spring Break • 5:15a-10:00a: Shiante' • 10:00a-12:30p: Sophie • 12:30p-5:00p: Jason • 5:00p-9:45p: Carlos *Sophie as back-up and covers day-time breaks.*	Spring Break • 5:15a-10:00a: Shiante' • 10:00a-12:30p: Sophie • 12:30p-5:00p: Chelsea • 5:00p-9:45p: Amanda *Sophie as back-up and covers day-time breaks.*	Spring Break • 5:15a-10:00a: Shiante' • 10:00a-12:30p: Sophie • 12:30p-5:00p: Amanda • 5:00p-9:45p: Steph *Sophie as back-up and covers day-time breaks.*	Spring Break • 5:15a-10:00a: Carlos • 10:00a-12:30p: Sophie • 12:30p-5:00p: Chelsea • 5:00p-9:45p: Chelsea *Sophie as back-up and covers day-time breaks.*	Spring Break • 5:15a-10:00a: Carlos • 10:00a-12:30p: Sophie • 12:30p-5:00p: Jason • 5:00p-9:45p: Ellen *Sophie as back-up and covers day-time breaks.*	• 6:45a-1:00p: Denise • 12:15p-4:45p: Chelsea • 4:15p-8:15p: Sophia

Hillsboro Parks & Recreation

Shute Park Aquatic and Recreation Center
WSC Schedule: MARCH 2013

SHARC

31					1	2
Sunday					**Friday**	**Saturday**
Easter • **10:00a**-Close: Jason					• 6:00p-Close: Scott	• 12:00p-Close: Brian S.
3	**4**	**5**	**6**	**7**	**8**	**9**
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
• 12:00p-Close: Jason	• 5:00p-Close: Korte	• 6:00p-Close: Nate D	• 6:00p-Close: Amanda	• 6:00p-Close: Amanda	• 6:00p-Close: Scott	• 12:00p-Close: Brian S.
10	**11**	**12**	**13**	**14**	**15**	**16**
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
• 12:00p-Close: Jason	• 5:00p-Close: Korte	• 6:00p-Close: Nate D	• 6:00p-Close: Amanda	• 6:00p-Close: Amanda	• 6:00p-Close: Scott	• 12:00p-Close: Brian S.
17	**18**	**19**	**20**	**21**	**22**	**23**
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
St. Paddy's Day • **10:00a**-Close: Jason	• 5:00p-Close: Korte	• 6:00p-Close: Nate D	• 6:00p-Close: Amanda	• 6:00p-Close: Amanda	• 6:00p-Close: Scott	• 12:00p-Close: Brian S
24	**25**	**26**	**27**	**28**	**29**	**30**
Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**
• 12:00p-Close: Jason	Spring Break • 12:30-3:30p: Nate D. • 5:00p-Close: Jason	Spring Break • 12:30-3:30p: Amanda • 5:00p-Close: Nate D	Spring Break • 12:30-3:30p: Nate D • 5:00p-Close: Amanda	Spring Break • 12:30-3:30p: Jason • 5:00p-Close: Amanda	Spring Break • 12:30-3:30p: Amanda • 5:00p-Close: Jason	• 12:00p-Close: Brian S

Hillsboro Parks & Recreation

SHARC Shute Park Aquatic & Recreation Center

SHARC: LIFEGUARD Schedule

Dates: MARCH 2013: Friday, March 1st – Sunday, March 24th (No Spring Break)

TIME	Monday	Tuesday	Wednes.	Thursday	Friday	TIME	Saturday	TIME	Sunday
5:15a – 9:00a Lap WEX	1 Will 2 Sarah V	1 **OPEN** 2 Isis	1 Sarah V 2 Isis	1 Isis 2 **OPEN**	1 Isis 2 Will	**6:45a – 8:45a Lap Adult**	1 Peter 2 Nate	**7:45a – 10:00a Lap**	1 Peter 2 Nate
9:00a – 11:00a Lap WEX	1 Zach B 2 Sarah V	1 Ty 2 Jason	1 Isis 2 Sarah V	1 Spears 2 Ty	1 Zach H 2 Will *(11:15) Sarah teach WEX 10-11 am Start at 11:15a*	***8:45a-12:00p Lessons***	*See posted schedule! Lessons END: 3/16*		
11:00a-1:00p Lessons Lap	1 Zach B 2 Sarah V	1 Ty 2 Jason	1 Zach B 2 Sarah V	1 Spears 2 Ty	1 Will *(11:15)* 1 Sarah 2 Zach H	**8:45a - 12:30p Lessons Lap** **new time*	1 Peter 2 Nate 3 Tanya* **3/2-3/16 only*	**10:00a - 12:30p Preschool Lap**	1 Peter 2 Nate
9:30a-2:30p Lessons ***HomeSchool*** ***Please see SL schedule for start times***	*TBD See posted SL Schedule*	*TBD See posted SL Schedule*	*TBD See posted SL Schedule END: 3/13*	*TBD See posted SL Schedule END: 3/14*		**12:15p – 3:45p Rec Swim**	1 Nate 2 Sarah H 3 Tanya 4 Meigs 5 Peter 6 Mariah 7 *WSC*	**12:15p– 3:45p Rec Swim** Maintenance	1 Nate 2 Lemieux 3 Tanya 4 Mariah 5 Morgan 6 Sarah H 7 Thatcher
1:00p – 4:00p Lessons	1 Zach H 2 Meigs	1 Morgan 2 Ty	1 Zach B 2 Meigs	1 Ty 2 Spears	1 Sarah 2 Scott	**3:30p – 4:30p *Rental***		**3:30p – 4:30p *Rental***	
	Both LG on stand 3:30 – 4:00 pm M-Th								
4:00p 7:00p Lessons Lap WEX	1 Casey 2 Meigs 3 Devin	1 Morgan 2 Hannah 3 Zach B	1 **OPEN** 2 Devin 3 Meigs	1 Devin 2 Zach B 3 Morgan	1 Mariah 2 Scott *(6)* *(6)*Hannah	**4:15p – 7:45p Rec Swim**	1 Meigs 2 Sarah H 3 Sharon 4 Metzsch 5 Grace 6 Bailey 7 Spears	**4:15p – 6:45p Rec Swim**	1 **OPEN** 2 Sarah H 3 Morgan 4 Grace 5 Tanya 6 Thatcher 7 Mariah
2:15p-7:00p Lessons ***Please see SL schedule for start times.***	*TBD See posted SL Schedule*	*TBD See posted SL Schedule*	*TBD See posted SL Schedule END: 3/13*	*TBD See posted SL Schedule END: 3/14*					
6:45p – 9:15p Rec Swim	1 Jared 2 Meigs 3 Amanda 4 Casey 5 Zach H 6 Shay	1 Zach H 2 Shay 3 Zach B 4 Jared 5 Hannah 6 Amanda	1 Zach H 2 Jared 3 Meigs 4 Shay 5 Zach B 6 Spears	1 Zach H 2 Sharon 3 Jared 4 Bailey 5 Zach B 6 Grace	1 Casey 2 Spears 3 Philip 4 Shay 5 Grace 6 Mariah 7 Hannah				

No School Day Recreation Swims

Friday, March 22nd **12:45 – 3:15 pm**

1 Sarah V	2 Amanda H	3 Isis C
4 Tanya J	5 Thatcher	6 Zach H
7 Ben M	WSC: Scott T.	

Spring Break schedule will run Monday, March 25th through Sunday, March 31st.

- If there is a **(#)** before your name, that is your **start** time. If there is a **(#)** behind your name, that is your **end** time.
- **Schedules are subject to change. Please note the AS OF Date in bottom corner.**