

Shift Variables

```
# shifts[(i, t, d, s)]: interpreter 'i' paired with teacher 't' works shift 's' on day 'd'
shifts = {}
for i in all_interps:
    for t in all_teachers:
        for d in all_days:
            for s in all_shifts:
                shifts[(i, t, d, s)] = model.NewBoolVar('shift_i%t%d%s%i' % (i, t, d, s))
```

Constraints

```
# Interpreters work at most max_daily_mtgs per day
for i in all_interps:
    for d in all_days:
        model.Add(sum(shifts[(i, t, d, s)] for t in all_teachers for s in all_shifts) <= max_daily_mtgs)

# Interpreters work a fair amount of shifts
for i in all_interps:
    model.Add(sum(shifts[(i, t, d, s)] for t in all_teachers for d in all_days for s in all_shifts) >= num_weekly_mtgs)
    model.Add(sum(shifts[(i, t, d, s)] for t in all_teachers for d in all_days for s in all_shifts) <=
        max(num_weekly_mtgs+1, tot_mtg_reqs - (num_interps-1)*num_weekly_mtgs))

# Teachers get a fair amount of interpreters
for t in all_teachers:
    model.Add(sum(shifts[(i, t, d, s)] for i in all_interps for d in all_days for s in all_shifts) >= num_weekly_mtgs)
    model.Add(sum(shifts[(i, t, d, s)] for i in all_interps for d in all_days for s in all_shifts) <=
        max(num_weekly_mtgs+1, tot_mtg_reqs - (num_interps-1)*num_weekly_mtgs))
```

Objective Function

```
# Optimize the objective function
model.Maximize(
    sum(interp_avails[i][d][s] * mtg_reqs[t][d][s] * shifts[(i, t, d, s)] for i in all_interps
        for t in all_teachers for d in all_days for s in all_shifts))
```

Statistics & Schedule

Teachers: 45
Interpreters: 62

Total Meeting Requests: 279
Total Meetings Matched: 278

Min Weekly Meetings: 1
Max Daily Meetings: 2

Interpreter Weekly Meetings Table

0 weekly meetings:	1
1 weekly meetings:	2
2 weekly meetings:	5
3 weekly meetings:	8
4 weekly meetings:	22
5 weekly meetings:	5
6 weekly meetings:	10
7 weekly meetings:	4
8 weekly meetings:	4
9 weekly meetings:	1
10 weekly meetings:	0

Min Meetings per Interpreter: 0
Med Meetings per Interpreter: 4
Avg Meetings per Interpreter: 4.5
Max Meetings per Interpreter: 9

Interpreter:	1	Teacher:	15	Day:	2	Shift:	2
Interpreter:	1	Teacher:	6	Day:	2	Shift:	4
Interpreter:	1	Teacher:	6	Day:	3	Shift:	8
Interpreter:	1	Teacher:	3	Day:	3	Shift:	10