**Week 2**

Which of the week 2 workshop videos did you watch?

A) What, videos?

B) I saw that they're there but didn't watch them.

C) Introduction to the auto grader

D) Graph Labelling

E) Power Generation

Correct Answer: N/A

What does the following MiniZinc model print as output: var 0..3: x; var 1..4: y; constraint x = y;

A) x=0; y=0

B) x = 1; y = 1;

C) x = 2; y = 2;

D) x = 3; y = 3;

E) =====UNSATISFIABLE=====

Correct Answers: B, D

What does the following MiniZinc model print as output when you run it? var 0..3: x; constraint x = x + 1;

A) x = 0;

B) x = 1;

C) x = 2;

D) x = 3;

E) =====UNSATISFIABLE=====

Correct Answer: E

What output does the following MiniZinc model produce? var 0..3: x; constraint 2\*x = x + 1;

A) x = 0;

B) x = 1;

C) x = 2;

D) x = 3;

E) =====UNSATISFIABLE=====

Correct Answer: B

What does the following MiniZinc model print? var 0..3: x; var 1..4: y; constraint y = x + 1; constraint 2\*y + 3\*x = 12;

A) x = 0; y = 0;

B) x = 1; y = 2;

C) x = 2; y = 3;

D) x = 3; y = 4;

E) =====UNSATISFIABLE=====

Correct Answer: C

**Week 3**

How much of Assignment 1 have you completed?

A) WHAT? There is an ASSIGNMENT??

B) seen it

C) thought about it

D) tried it

E) finished it

Correct Answer: N/A

How many lectures about sets have you watched?

A) none

B) 1

C) 2-3

D) 4

E) all

Correct Answer: N/A

Which declaration is best to represent a set of numbers from 1..100000 of cardinality between 3 and 10 ?

A) array[1..10] of var 0..100000: x;

B) array[1..100000] of var 3..10: x;

C) var set of 0..100000: x;

D) array[1..100000] of var bool: x;

E) array[3..10] of var 1..100000: x;

Correct Answer: A

Which declaration is best to represent a set of numbers from 1..10 of cardinality at most 100000?

A) array[1..10] of var 0..100000: x;

B) var set of 0..100000: x;

C) array[0..100000] of var 1..10: x;

D) array[0..100000] of var bool: x;

E) var set of 1..10: x;

Correct Answer: E

Which declaration is best to represent a set of numbers from 1..1000 of cardinality between 99 and 150?

A) array[1..1000] of var 99..150: x;

B) var set of 99..150: x;

C) array[99..150] of var 1..1000: x;

D) array[1..1000] of var bool: x;

E) array[99..150] of var bool: x;

Correct Answer: D

**Week 4**

How many lectures in Week 3 have you watched?

A) none

B) 1

C) 2

D) 3

E) all

Correct Answer: N/A

What does the following constraint express: constraint x = NIGHT /\ x = EVE -> y = EVE \/ y = OFF;

A) x is not eve

B) if x is eve then y is eve. x is not off

C) no constraint

D) y is night

E) if x is night or eve then y is eve or off

Correct Answer: C

What does the following constraint express: constraint x = NIGHT \/ (x = EVE -> y = EVE /\ y = OFF);

A) if x is eve then y is eve. x is not off

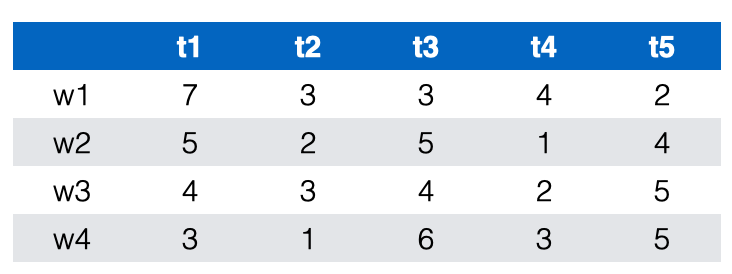
B) y is not night

C) x is not eve

D) if x is night or eve then y is eve or off

E) x is off

Correct Answer: C

What is the maximum profit for the assignment problem: 

A) 16

B) 17

C) 18

D) 20

E) 21

Correct Answer: D

**Week 5**

How many lectures in the "Multiple Modelling" lesson have you watched?

A) None

B) 1

C) 2

D) 3

E) all

Correct Answer: N/A

How difficult did you find Assignment 1?

Correct Answer: N/A

How much work have you done on Assignment 2?

A) What? Another assignment??

B) None

C) Looked at it

D) Tried it

E) Finished it

Correct Answer: N/A

What is the value of h in the following var 0..100: x = y + 2; var 4..7: y; int: h = lb(x);

A) 0

B) 4

C) 6

D) 2

E) any of the above

Correct Answer: C

If I have 5 kinds of shifts and I need between 2 and 4 people on each shift, and at most 8 people on the first 3 shift types, what form of global cardinality constraint should I use?

A) can’t use global cardinality

B) global\_cardinality\_low\_up

C) global\_cardinality

D) global\_cardinality\_low\_up\_closed

E) global\_cardinality\_closed

Correct Answer: C

If I have 5 kinds of shifts and I need exactly 4 people on each shift except the last, what form of global cardinality constraint should I use?

A) global\_cardinality

B) global\_cardinality\_low\_up

C) global\_cardinality\_low\_up\_closed

D) global\_cardinality\_closed

E) can’t use global cardinality

Correct Answer: B

**Week 6/7**

How many of the videos in "Debugging and improving models" have you watched?

A) none

B) 1

C) 2-3

D) all

Correct Answer: N/A

Which of the following are correct solutions of array[1..2] of var 0..1: x; var 1..3: i; constraint x[i] >= 1;

A) x = [1,0]; i=1;

B) x = [1,0]; i=2;

C) x = [1,1]; i=2;

D) x = [0,1]; i=3;

E) x = [0,1]; i=2;

F) x = [0,1]; i=1;

Correct Answers: A, C, E

Which of the following are correct solutions of array[1..2] of var 0..1: x; var 1..3: i; constraint x[1] = 0; constraint i <= 2 -> x[i] >= 1;

A) x = [0,0]; i = 2;

B) x = [0,1]; i = 2;

C) x = [0,0]; i = 3;

D) x = [1,2]; i = 2;

E) x = [0,1]; i = 3;

F) x = [1,2]; i = 3;

Correct Answers: B, C, E

Which of the following are correct solutions of array[1..2] of var 0..1: x; var 1..3: i; constraint x[i] <= 0 -> x[i+1] >= 1;

A) x = [0,1]; i = 1;

B) x = [1,1]; i = 1;

C) x = [0,1]; i = 2;

D) x = [1,0]; i = 2;

E) x = [1,1]; i = 2;

F) x = [0,0]; i = 3;

G) x = [0,1]; i = 3;

Correct Answers: A, B, C, E, F, G

**Week 7/8**

How many lectures in Modelling with Predicates have you watched?

A) 1

B) 2

C) 3

D) all

Correct Answer: N/A

What is the value of h in the following var 0..100: x = y + 2; var 4..7: y; int: h = lb(x);

A) 0

B) 4

C) 6

D) 2

E) any of the above

Correct Answer: C

Why is the following not allowed in MiniZinc: predicate p(var int: x) = let {var int: y} in x=2\*x; var int: u; constraint not p(u);

A) because u has no bounds

B) because y has no bounds

C) because u is universally quantified

D) because y is universally quantified

E) because p is reified

Correct Answer: D

The context of the expression x <-> y in constraint (not b) \/ u + (x <-> y) >= 0; is

A) root

B) positive

C) negative

D) mixed

E) none of the above

Correct Answer: B

**Week 6 (Suzhou) / Week 8 (Clayton)**

How many lectures on Multiple Modelling have you watched (repeat from last week)

A) 0

B) 1

C) 2

D) 3

E) All 4 of them

Correct Answer: N/A

How many lectures in Flattening have you watched

A) 0

B) 1

Correct Answer: N/A

Have you started Assignment 2?

A) What, there's another assignment?

B) Looked at it

C) Working on it

D) Finished it

Correct Answer: N/A

Approximately how many variables result from the flattening of array[1..4] of var -6..6: x; constraint forall(i in 1..3)(x[i+1] != abs(x[i]) + 1);

A) 0

B) 4

C) 6

D) 7

E) 13

Correct Answer: D

Approximately how many variables result from the flattening of array[1..4] of var 0..12: x; constraint forall(i in 1..3)(x[i+1] != abs(x[i]) + 1);

A) 0

B) 4

C) 6

D) 7

E) 13

Correct Answer: B

Approximately how many constraints result from the flattening of array[1..4] of var -6..6: x; constraint forall(i in 1..3)(abs(x[i+1]) != abs(x[i]));

A) 0

B) 4

C) 6

D) 7

E) 9

Correct Answer: D

Approximately how many variables result from the flattening of array[1..4] of var -6..6: x; constraint forall(i in 1..3) ( let { int: y = i + 1; var int: z = abs(x[y]); } in x[i] > z );

A) 0

B) 4

C) 6

D) 7

E) 13

Correct Answer: D

Approximately how many constraints result from the flattening of array[1..4,1..5] of var bool: x; constraint forall(i in 1..4)(x[i,5] = exists(j in 1..4)(x[i,j]));

A) 0

B) 4

C) 5

D) 9

E) 20

Correct Answer: B

**Week 9**

How many lectures in "Scheduling" have you watched?

A) None

B) 1-2

C) 3-4

D) All 5

Correct Answer: N/A

Does the following cumulative constraint have an answer? cumulative([0..2,3..5,6,1..5],[3,1,1,3],[2,1,3,2],3)

A) What do you mean by cumulative??

B) definitely has a solution

C) probably has a solution

D) probably doesn't have a solution

E) definitely has no solution

Correct Answer: B

Does the following cumulative constraint have an answer? cumulative([0..5,0..5,6,0..5,0..5],[3,1,1,3,1],[2,1,3,2,2],3)

A) What? Another cumulative?

B) Definitely has a solution

C) Probably has a solution

D) Probably doesn't have a solution

E) Definitely has no solution

Correct Answer: E

What is another way of writing the following constraint: cumulative([a,b,c,d,e], [3,1,1,3,1], [3,2,2,3,2],3)

Correct Answer: disjunctive([a,b,c,d,e], [3,1,1,3,1])

What is another way of writing the following constraint: disjunctive([a,b,c,d,e], [1,1,1,1,1])

Correct Answer: alldifferent([a,b,c,d,e])

**Week 10**

How many lectures in Packing have you watched?

A) none

B) 1

C) 2

D) all

Correct Answer: N/A

Does the following diffn constraint have an answer diffn([0..2,3..5,5,1..5],[0..1,0..2,0,0..1],[3,1,1,3],[2,2,3,2])

A) What is diffn again?

B) definitely has a solution

C) probably has a solution

D) probably doesn't have a solution

E) definitely has no solution

Correct Answer: E

Does the following diffn constraint have an answer diffn([0..2,3..5,5,1..5],[0..3,0..2,0,0..1],[3,1,1,3],[2,2,3,2])

A) Definitely has a solution

B) Probably has a solution

C) Probably doesn't have a solution

D) Definitely has no solution

Correct Answer: A

Write the following constraint using a different, simpler global constraint: diffn([0..9,0..9,0..10,1..8],[0..2,0..1,0..2,0..3],[1,1,1,1],[4,5,6,7])

Correct Answer: alldifferent([0..9,0..9,0..10,1..8])

**Week 11**

How many lectures in Symmetry and Dominance have you watched?

A) None

B) 1

C) 2

D) 3

E) all

Correct Answer: N/A

Is the following lex\_lesseq constraint satisfiable? lex\_lesseq([0..1, 0..1, 1, 1, 0..1, 0], [0, 0..1, 0, 1, 1, 1]);

A) What's a lex\_lesseq?

B) definitely has a solution

C) probably has a solution

D) probably doesn't have a solution

E) definitely has no solution

Correct Answer: B

Is the following lex\_lesseq constraint satisfiable? lex\_lesseq([0..1, 0..1, 1, 1, 0..1, 1], [0, 0, 1, 1, 0, 0]);

A) What's a lex\_lesseq?

B) definitely has a solution

C) probably has a solution

D) probably doesn't have a solution

E) definitely has no solution

Correct Answer: E

Is the following constraint satisfiable? value\_precede\_chain( [0,2,4,1,3], [0..3, 1..3, 4..5, 0..3])

A) What's a lex\_lesseq?

B) definitely has a solution

C) probably has a solution

D) probably doesn't have a solution

E) definitely has no solution

Correct Answer: B