DEC.21

Meeting with Mengchen & Levin

Input variables		Index	Feature importance	Shape/type	Transfer to X_features
1st gain order sequence		0	0.041	[A list of 18 int]	float (list->a clustered label) 3 labels (can be 0,1, or 2)
1st gain time sequence		1	0.049		
Accumulated amount of each item		2	0.018		
1st gain time sequence x Reward		3	0.050		
1st gain order sequence x Reward		4	0.026		
If useless tools was crafted (3 booleans)	iron_axe	5	0	boolean	float (1 if True else 0)
	stone_axe	6	0.003	boolean	float (1 if True else 0)
	wooden_axe	7	0.015	boolean	float (1 if True else 0)
Sparse total reward		8	0.055	int	float
Dense total reward		9	0.120	int	
Attack efficiency		10	0.097	float	
Attack ratio		11	0.102	float	
Equipped attack ratio		12	0.100	float	
Camera moving ratio		13	0.111	float	
Position moving ratio		14	0.100	float	
Placed_items (4 items)	torch_placed	15	0.038	int	
	cobblestone_placed	16	0.028	int	
	dirt_placed	17	0.021	int	
	stone_placed	18	0.019	int	
If_smelt_coal		19	0.008	boolean	float (1 if True else 0)
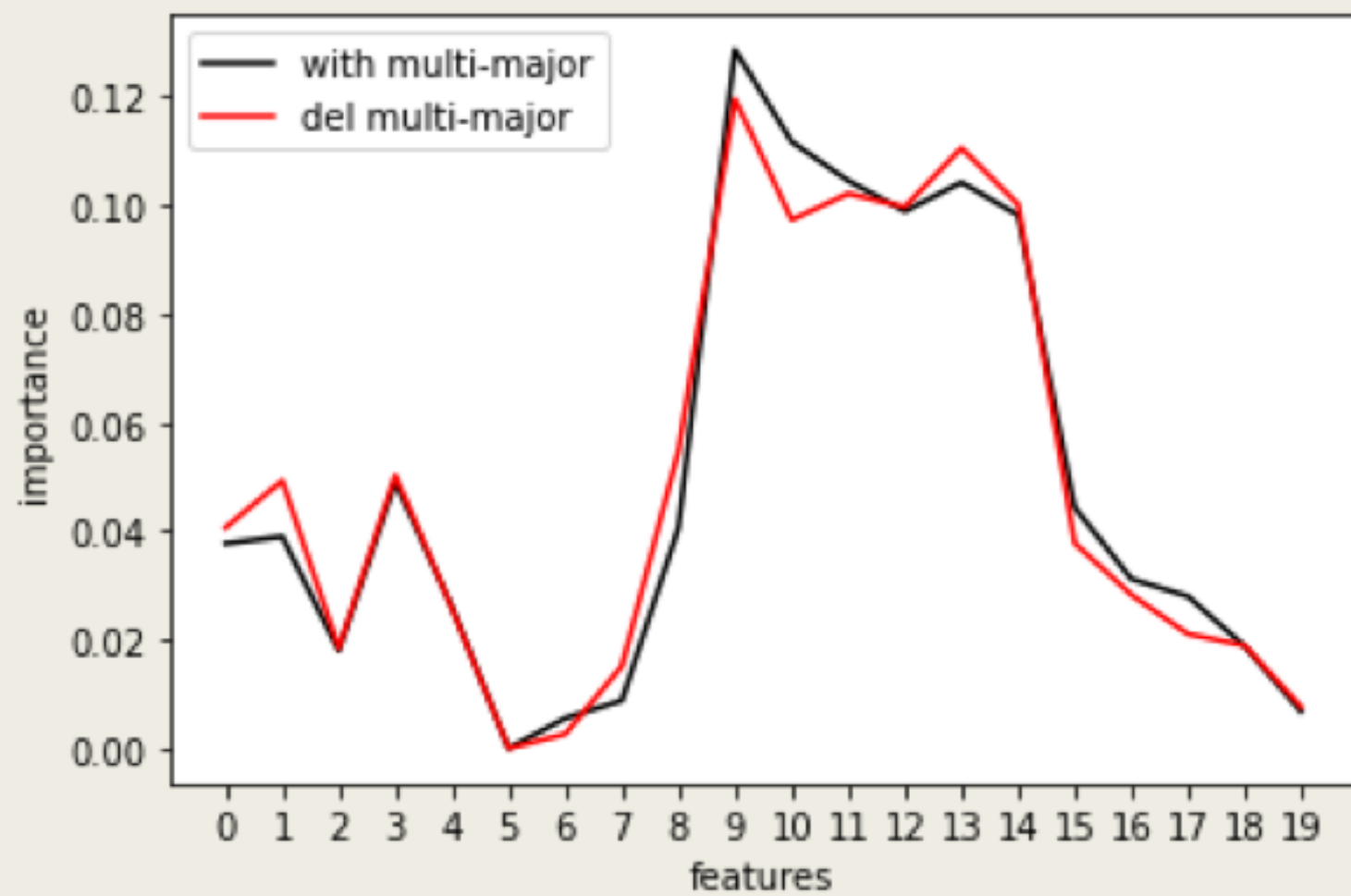
* The order of 18 items in inventory list and reward:

Index	Item	Reward scores
0	'coal'	
1	'cobblestone'	16
2	'crafting_table'	4
3	'dirt'	
4	'furnace'	32
5	'iron_axe'	
6	'iron_ingot'	128
7	'iron_ore'	64
8	'iron_pickaxe'	256
9	'log'	1
10	'planks'	2
11	'stick'	4
12	'stone'	
13	'stone_axe'	
14	'stone_pickaxe'	32
15	'torch'	
16	'wooden_axe'	
17	'wooden_pickaxe'	8

Sparse reward:
The reward will be accumulated whenever one item has been obtained at the first time;

Dense reward:
The reward will be accumulated every time when one item has been obtained, even if there are already same items.

Features we might concern

- Dense total reward

- Attack efficiency

- Attack ratio

- Equipped attack ratio

- Camera moving ratio

- Position moving ratio

- Others in the 18 feature lists
  - *(maybe collect the data first, and analyze afterwards?)*

Results & Discussion

- 12-14: 5 medium, 12 junior

- 12-16: 9 medium, 10 junior

- Some score_probability are almost even (e.g: 0.41, 0.40, 0.19)

Feb.1

Meeting with Mengchen & Levin

Mis-match trace data

- 9 manager evaluations miss the corresponding worker trace data

- 87 available data

- Check with Nick:

  - <u>Make sure the 87 matched data have correct Round ID (are we sure now?)</u>
  - Would be better if the 9 missed data are found, but not mandatory
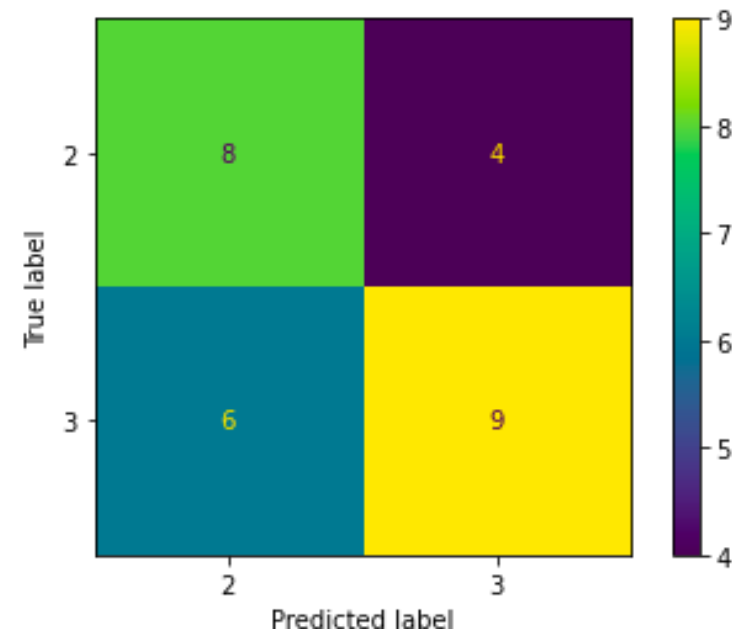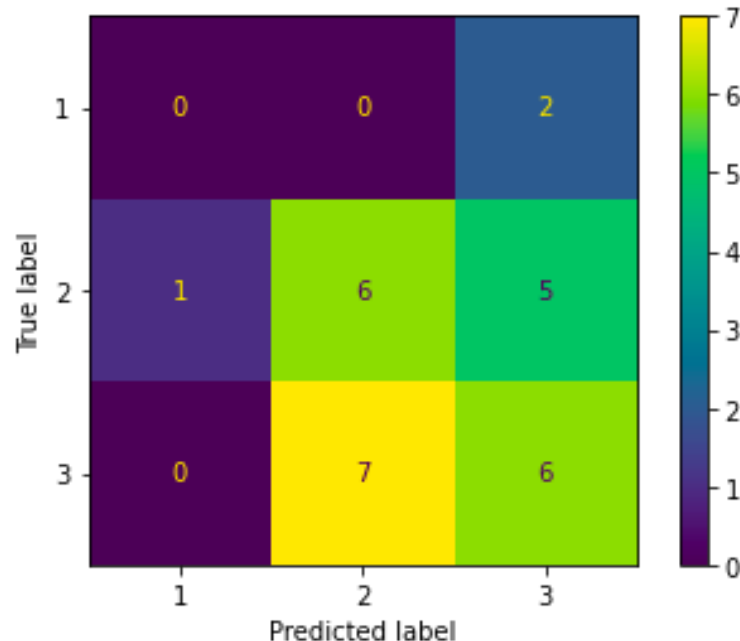
Fine-tune the model with manager surveys

- Linear regression: failed (all predict 2)

- Random forest:
  - 44.4% accuracy for 3-class
  - 62.9% accuracy for 2-class (combined 1&2)

Features analysis visualization

- Did for all 20 features, selected some typical ones

inventory_firstGainStep

position_mov_ratio