

Student's canteens

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Introduction

- Data on student canteens is interesting
- Existing dataset
<https://menzostat.ggu.cz>

2023-05-29	2	1	Polévka hovězí s nudlemi	71
2023-05-29	3	1	Písecká hovězí pečeně, penne	41
2023-05-29	3	2	Vepřový plátek s restovanou zeleninou, vařené brambory	69
2023-05-29	3	3	Kuřecí stehno na portském víně, dušená rýže	110
2023-05-29	3	4	Špagety se sýrovou omáčkou a brokolicí	64
2023-05-29	3	7	Čínská pánvička s jasmínovou rýží	40
2023-05-26	2	1	Polévka krkonošské kyselo	39
2023-05-26	3	1	Hovězí chilli con carne, dušená rýže	97
2023-05-26	3	2	Kuřecí prsíčka v sezamovém kabátku, grilovaná zelenina	89
2023-05-26	3	3	Späťlový salát na rajčatech s fetou, italský dresink	30
2023-05-26	3	4	Dukátové buchtičky s vanilkovým krémem	49
2023-05-26	3	7	Indonéská rýže Naši Goreng	37
2023-05-25	2	1	Polévka ruský boršč	80
2023-05-25	3	1	Hovězí maso se smetanovo-houbovou omáčkou, houskové knedlíky	79
2023-05-25	3	2	Farmářské žebírko, šťouchané brambory	54
2023-05-25	3	3	Kuřecí stehno ala bažant, dušená rýže	62
2023-05-25	3	4	Smažený sýr, vařené brambory, tatarská omáčka	157
2023-05-25	3	7	Segedínský guláš z robi masa, houskové knedlíky	50
2023-05-24	2	1	Polévka slepičí s masem a nudlemi	115
2023-05-24	3	1	Hovězí řecké STIFÁDO, dušená rýže	92
2023-05-24	3	2	Vepřové maso na černém pivu s bramborovým knedlíkem	116
2023-05-24	3	3	Tilápie na másle, vařené brambory, jarní zelenina	83
2023-05-24	3	4	Těstoviny pomodoro s bazalkovým pestem a parmezánem	77
2023-05-24	3	7	Chilli sin carne, basmati rýže	51
2023-05-23	2	1	Polévka čočková	86
2023-05-23	3	1	Hovězí na rozmarýnu, houskové knedlíky	80
2023-05-23	3	2	Vepřové karé s pepřovou omáčkou, šťouchané brambory	78
2023-05-23	3	3	Burrito s kuřecím masem a čedarem na ledovém salátu	161
2023-05-23	3	4	Smažená rýže s wok zeleninou a koriandrem	53
2023-05-23	3	7	Bulgur s uzeným tofu a granátovým jablkem	47
2023-05-22	2	1	Polévka rajčatová s těstovinou	108
2023-05-22	3	1	Vepřový plátek na česneku, barevný kuskus	110

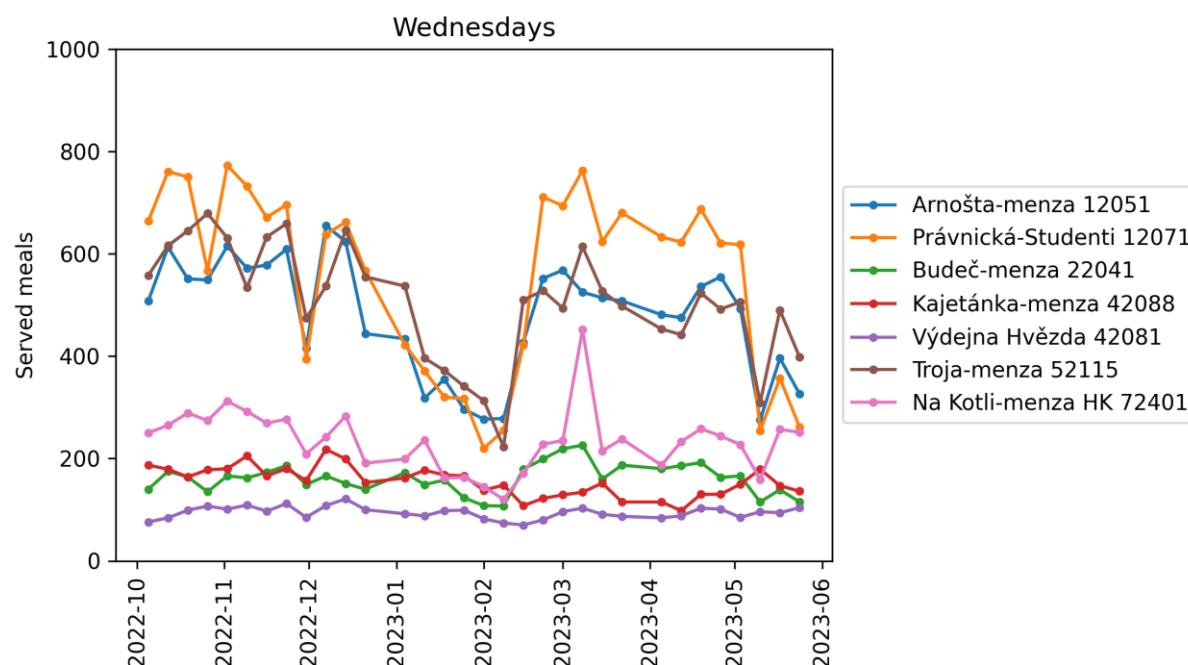
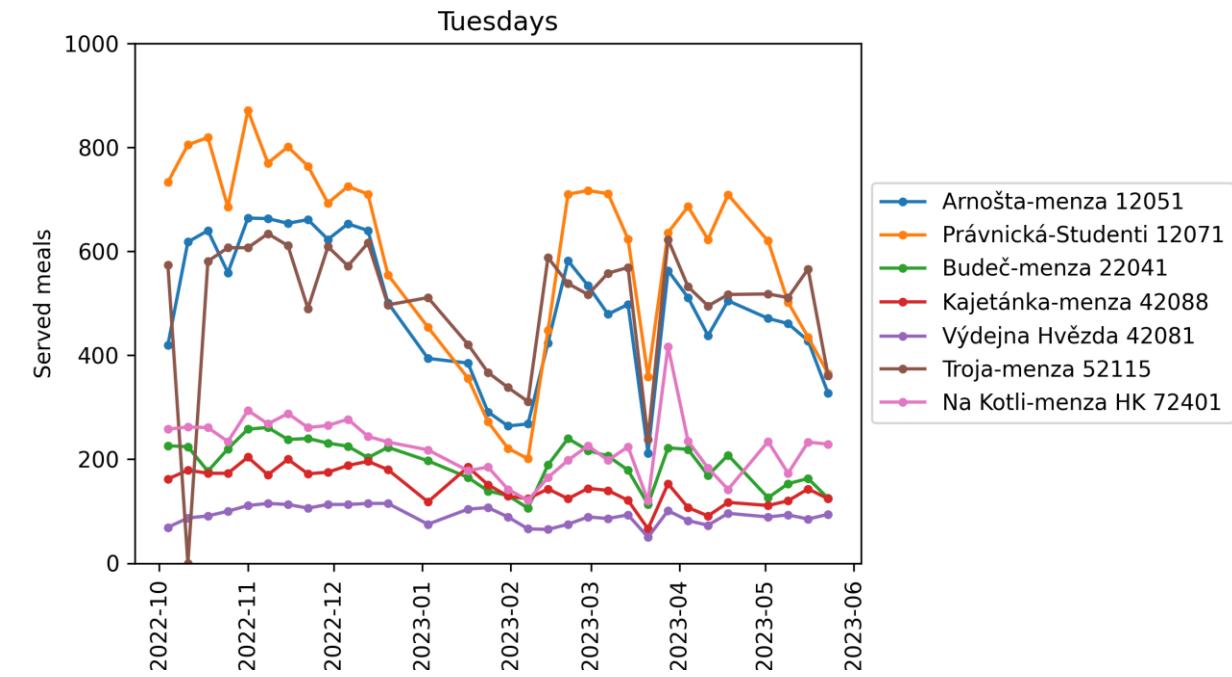
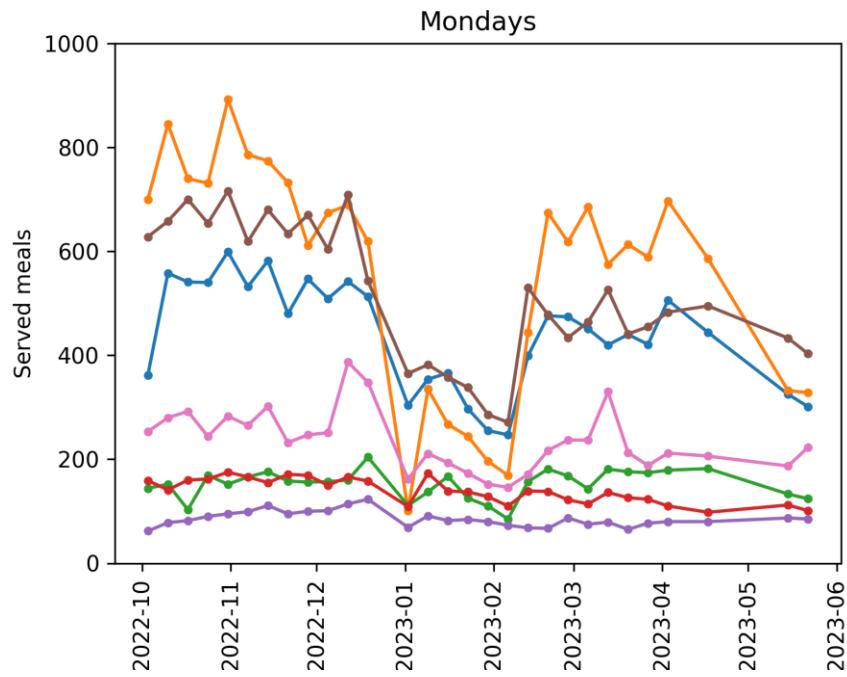
Data acquisition

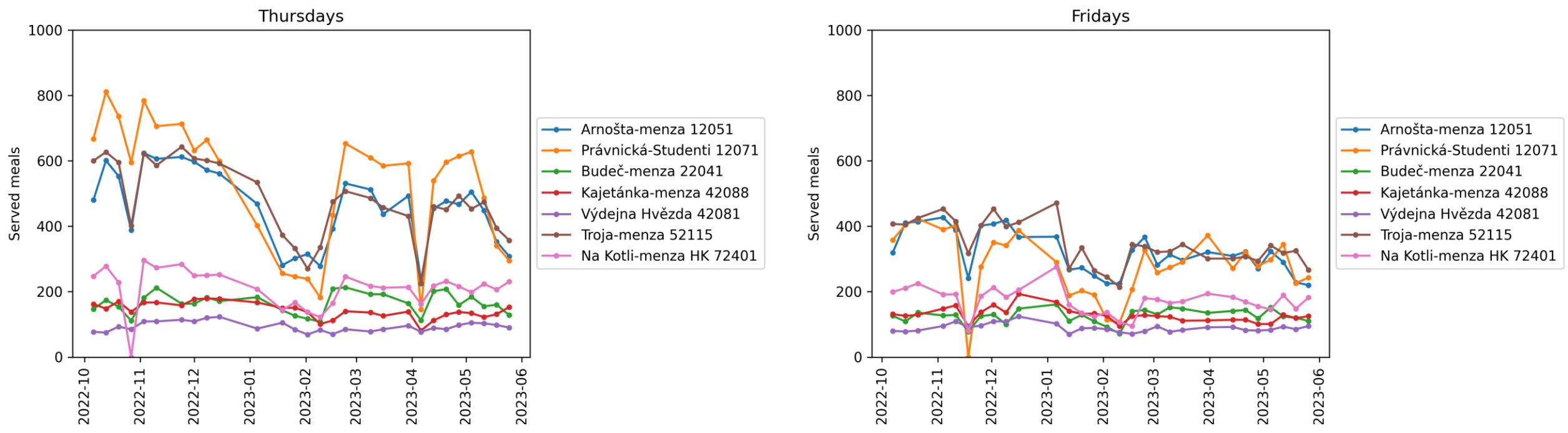
- Menzostat queries every canteen's state every minute
- Dataset somehow downloadable from website
 - Only max. 7 day interval
 - Bash script provided by Menzostat's author

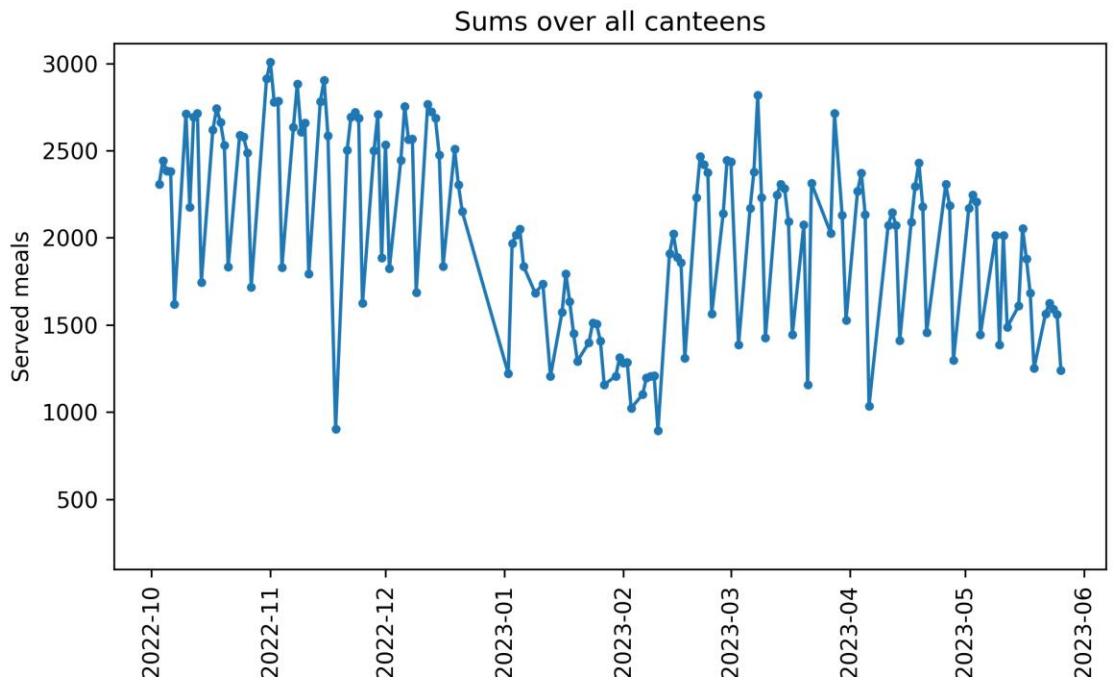
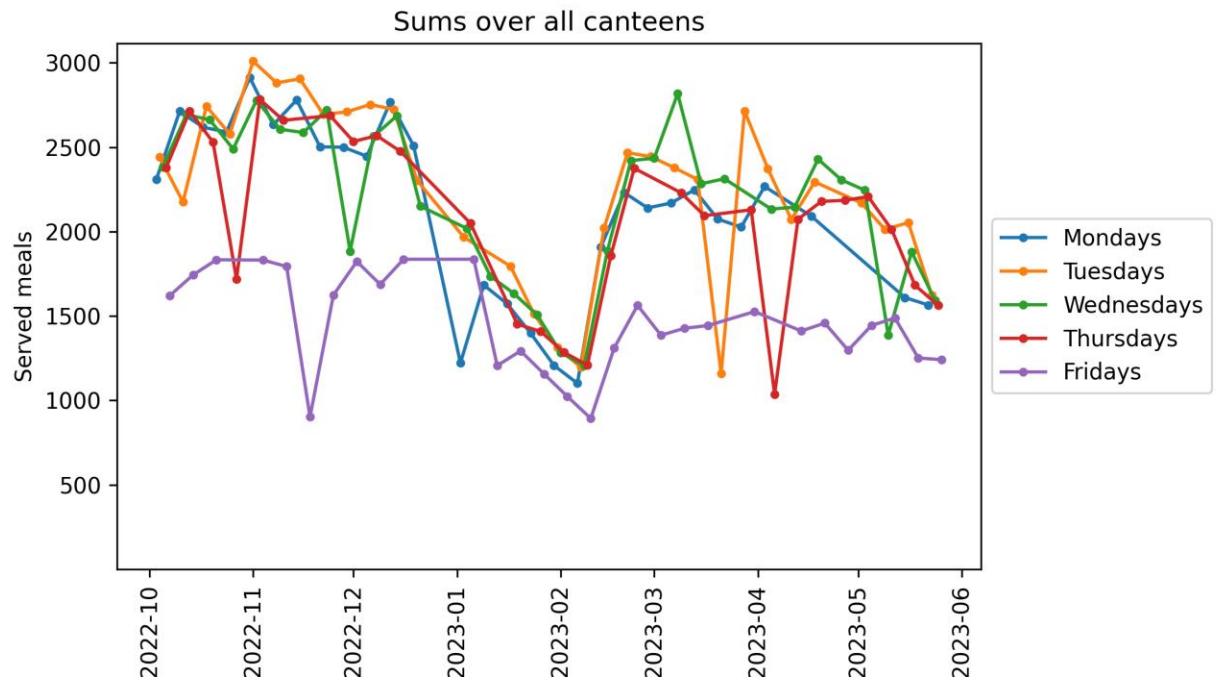
Data preparation

- A looooot of cleaning and transformation
 - Divide by canteen and date
 - Sort by time
 - Filter by opening hours and by date (October 2022+)
 - Deduplicate records with the same minute
 - Look after „served“ attribute that drops in time
 - Probably undos
 - Interpolate for missing records
 - Pick only biggest 7 canteens
 - Except Albertov which was closed during the year
 - Add records for dates that appear in some canteens
 - Don't care about preordered meals – their serving isn't recorded in data

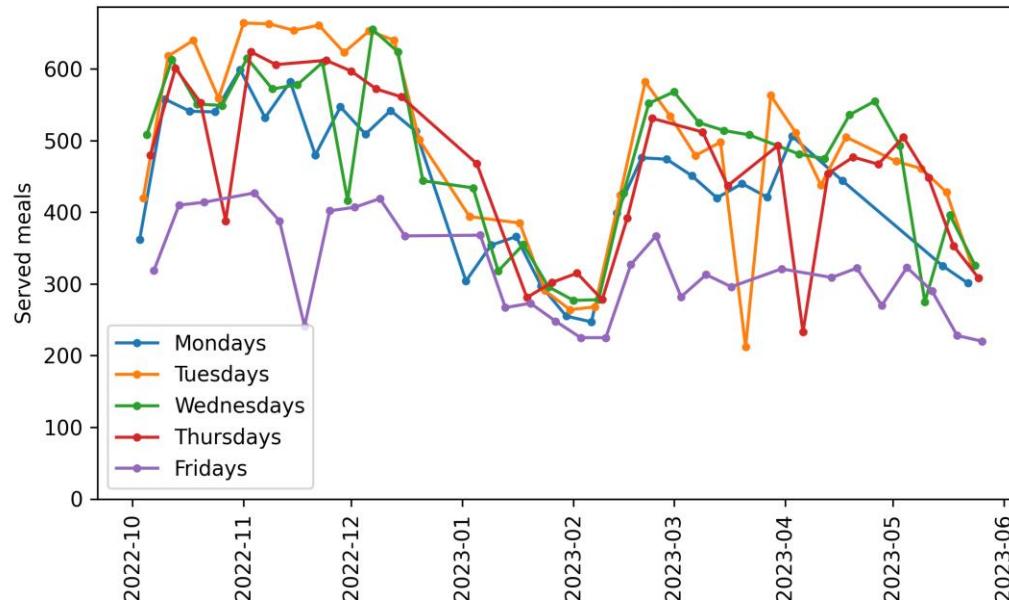
Meals served during the year,
grouped by day of the week



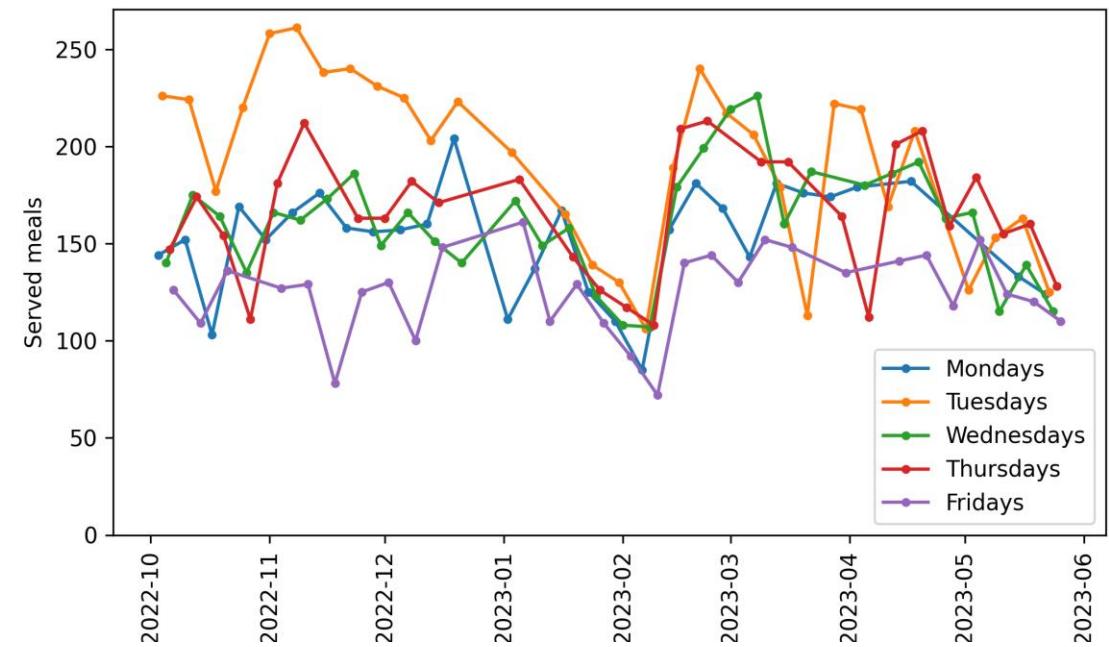




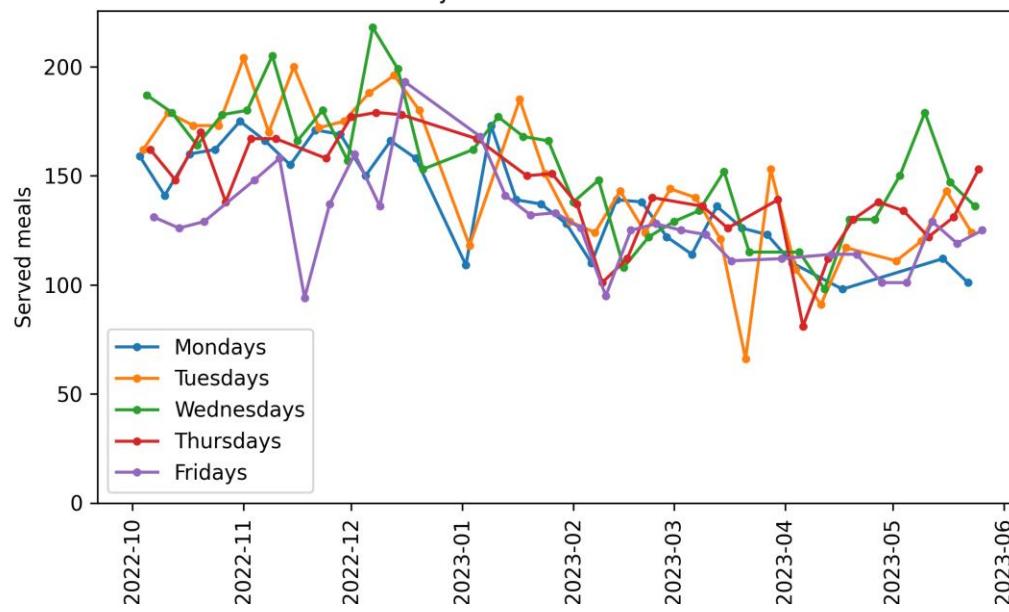
Arnošta-menza 12051



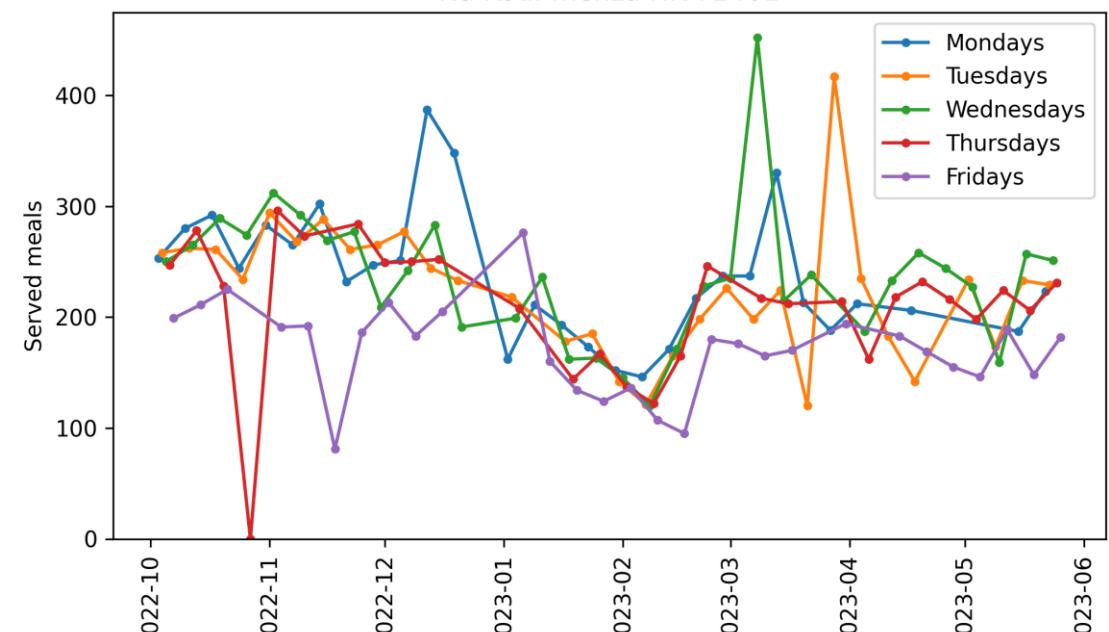
Budeč-menza 22041



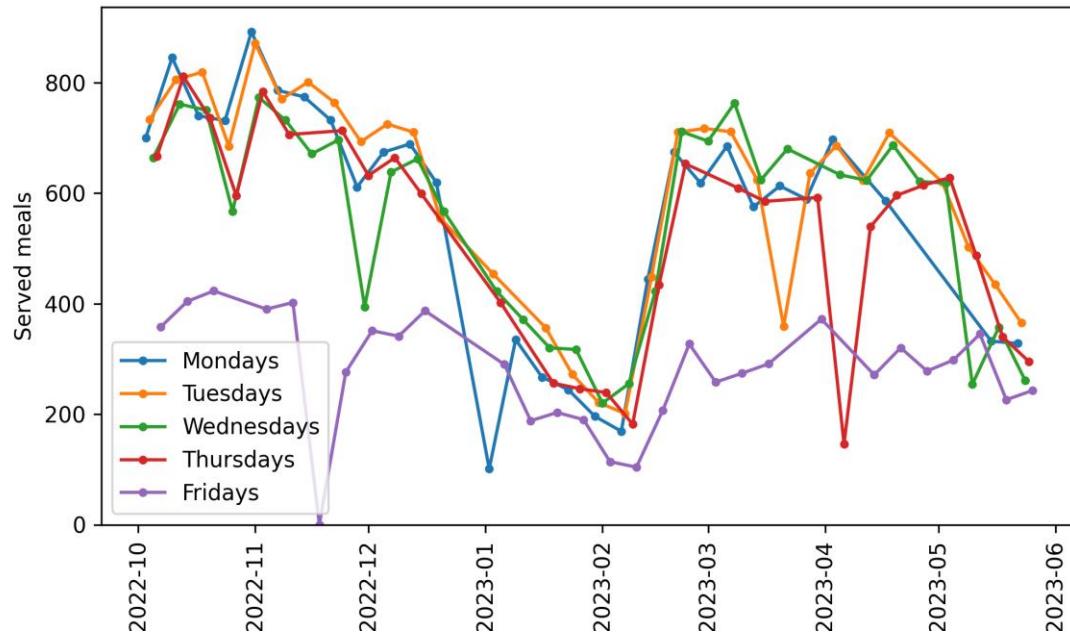
Kajetánka-menza 42088



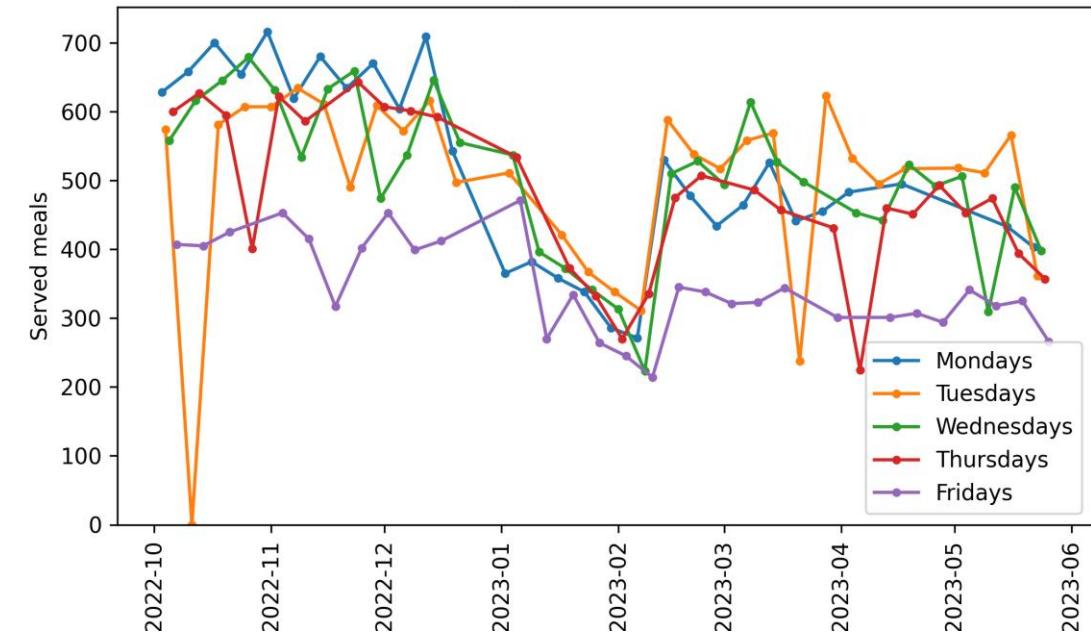
Na Kotli-menza HK 72401



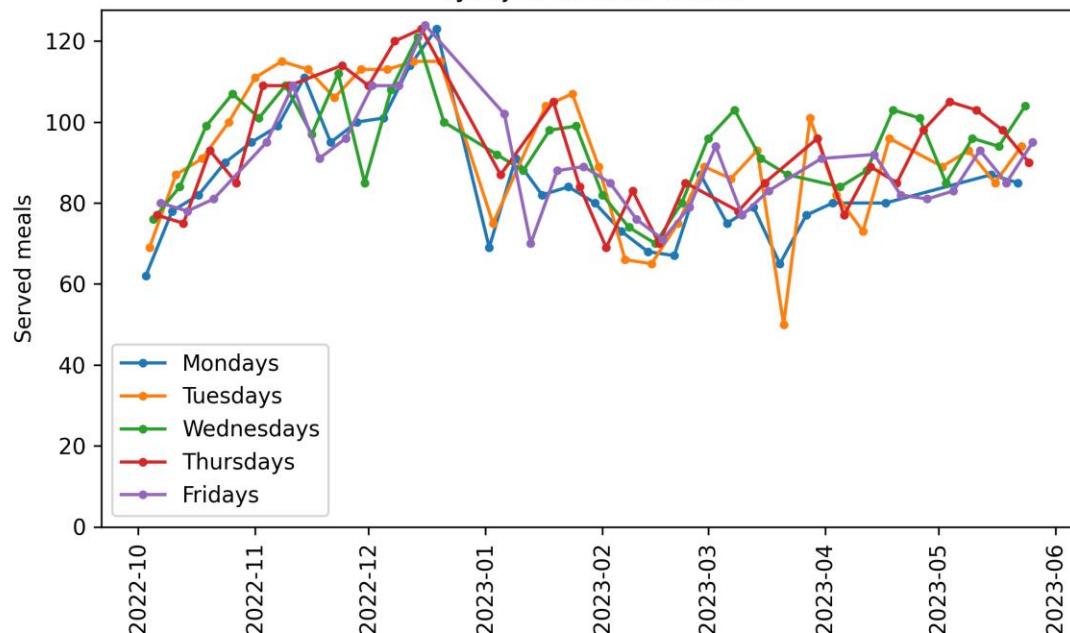
Právnická-Studenti 12071



Troja-menza 52115

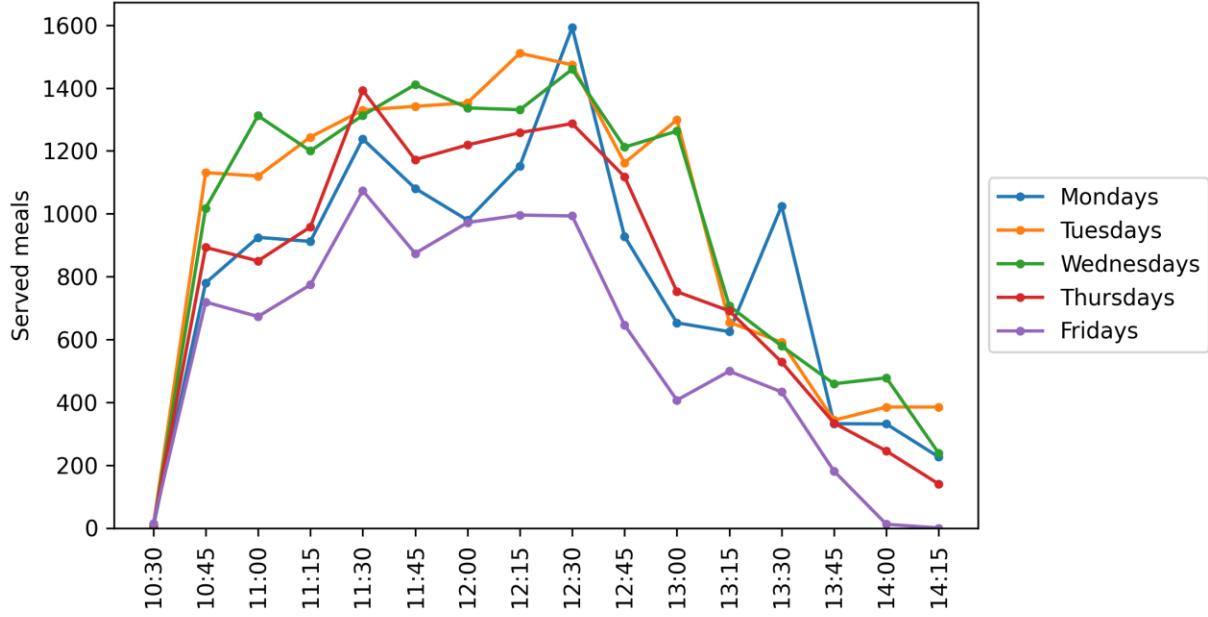


Výdejna Hvězda 42081

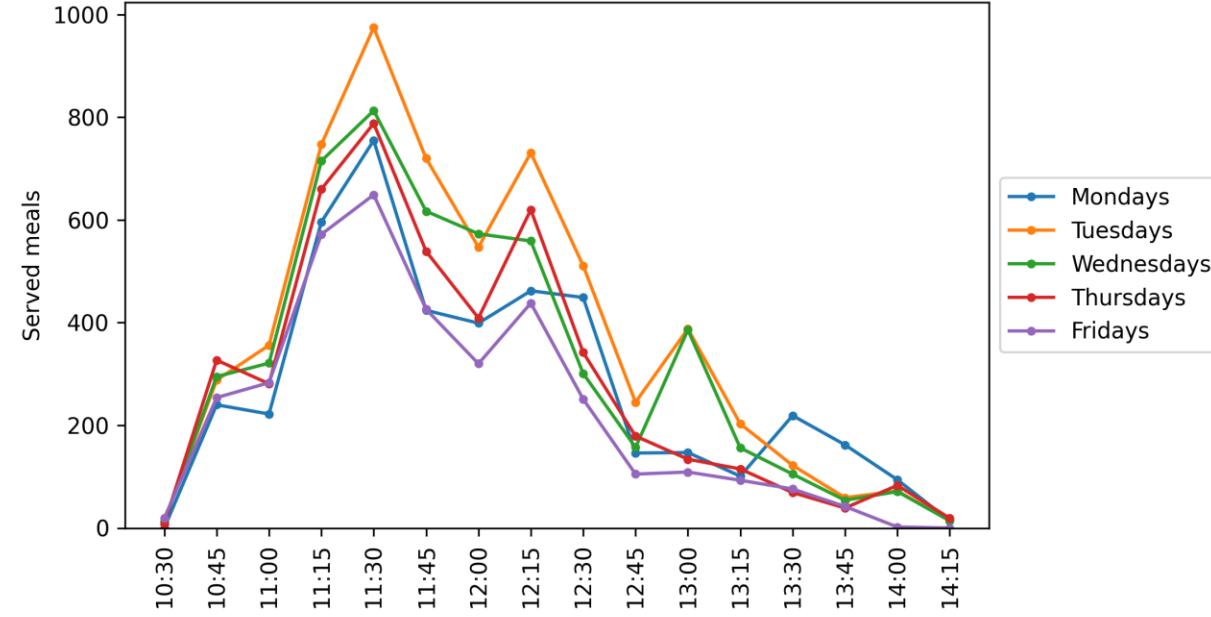


Meals served by interval

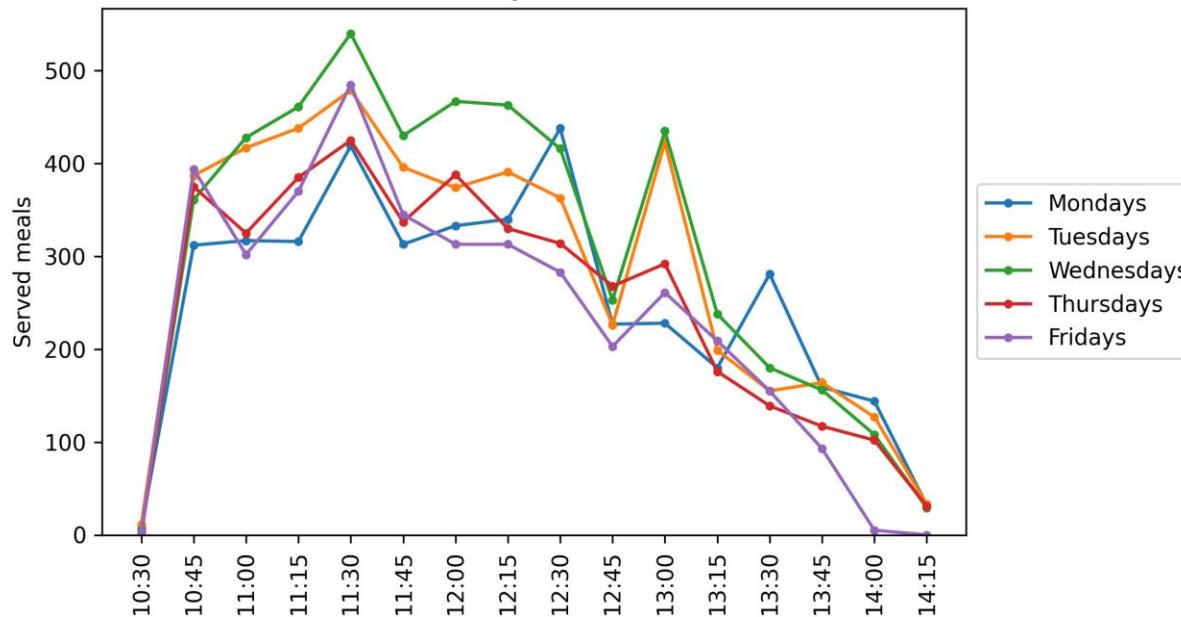
Meals served in Arnošta-menza 12051



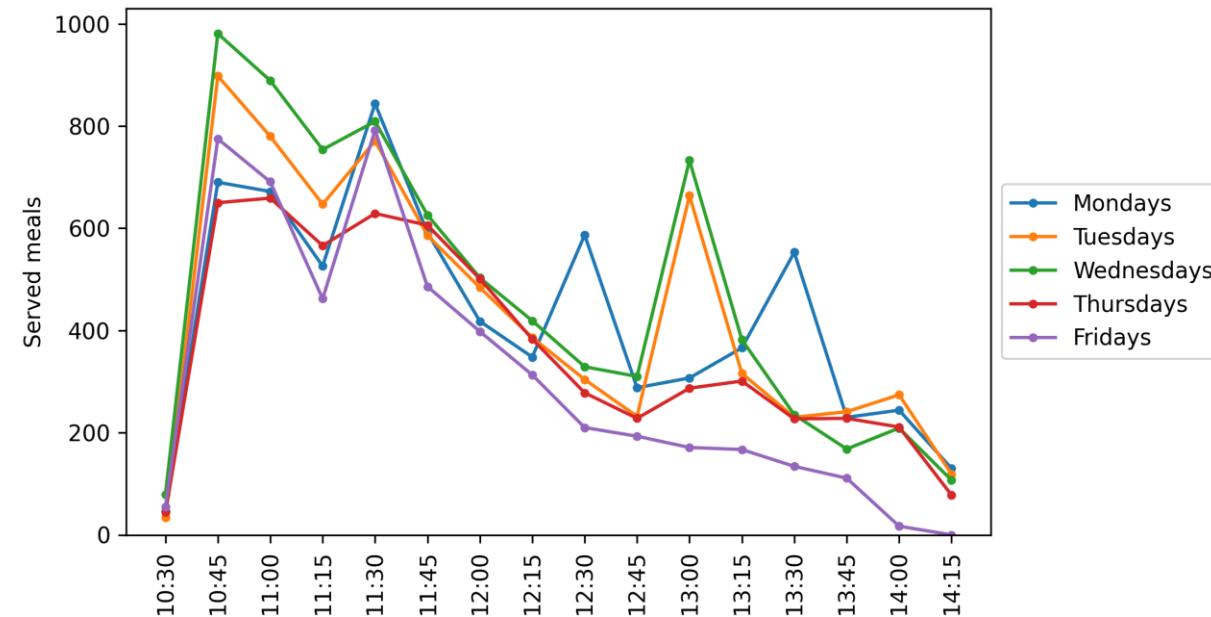
Meals served in Budeč-menza 22041



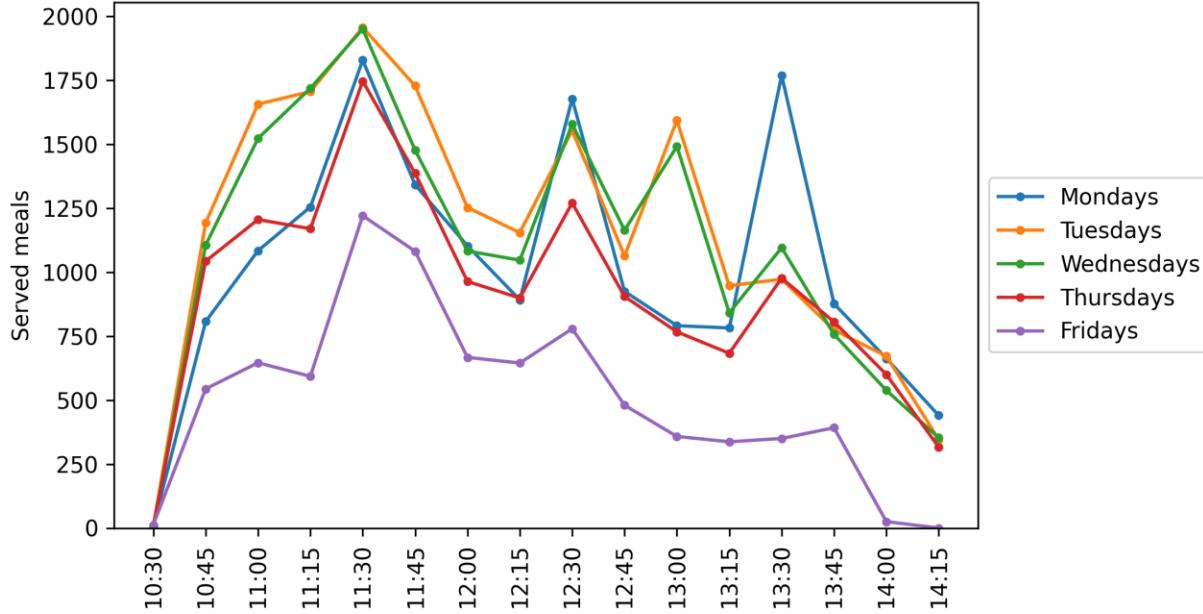
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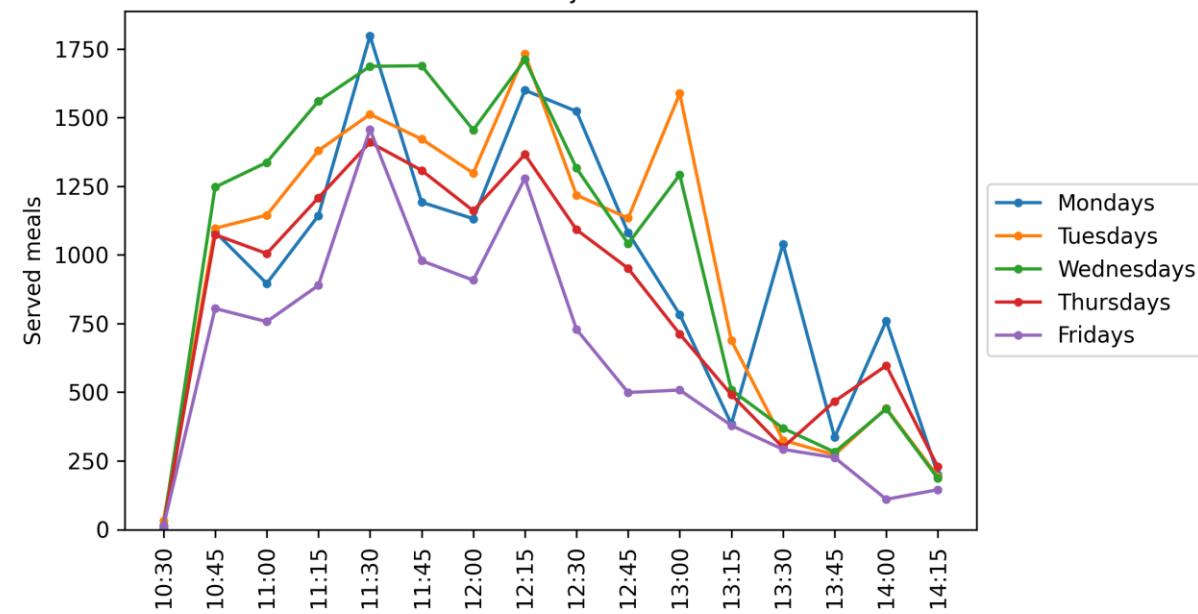
Meals served in Na Kotli-menza HK 72401



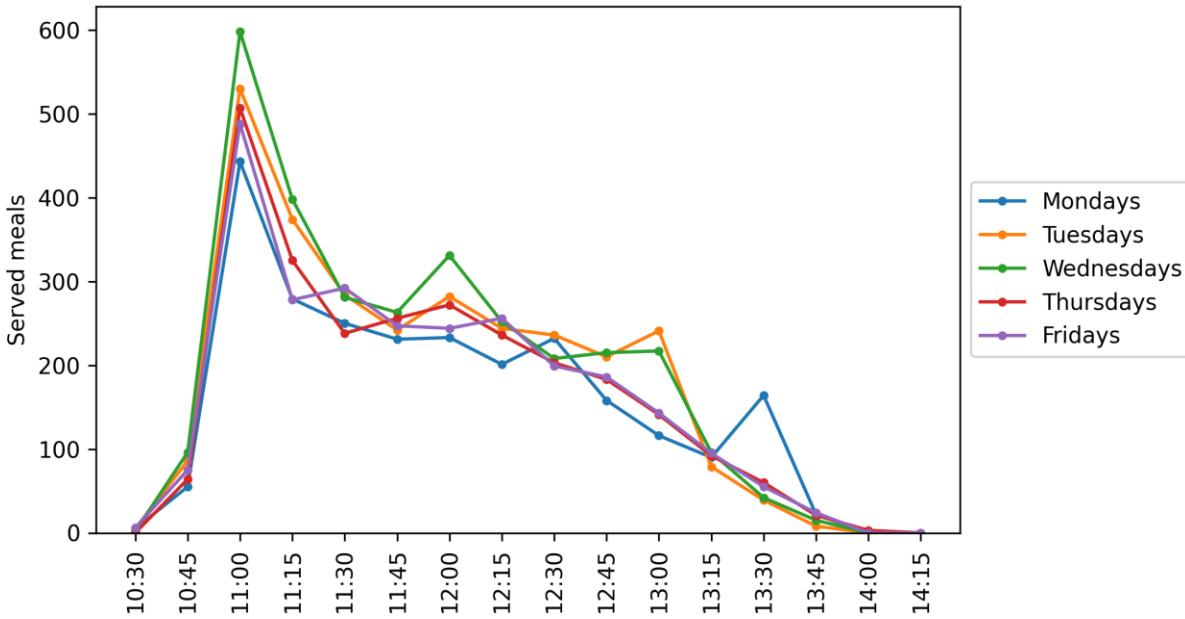
Meals served in Právnická-Studenti 12071



Meals served in Troja-menza 52115

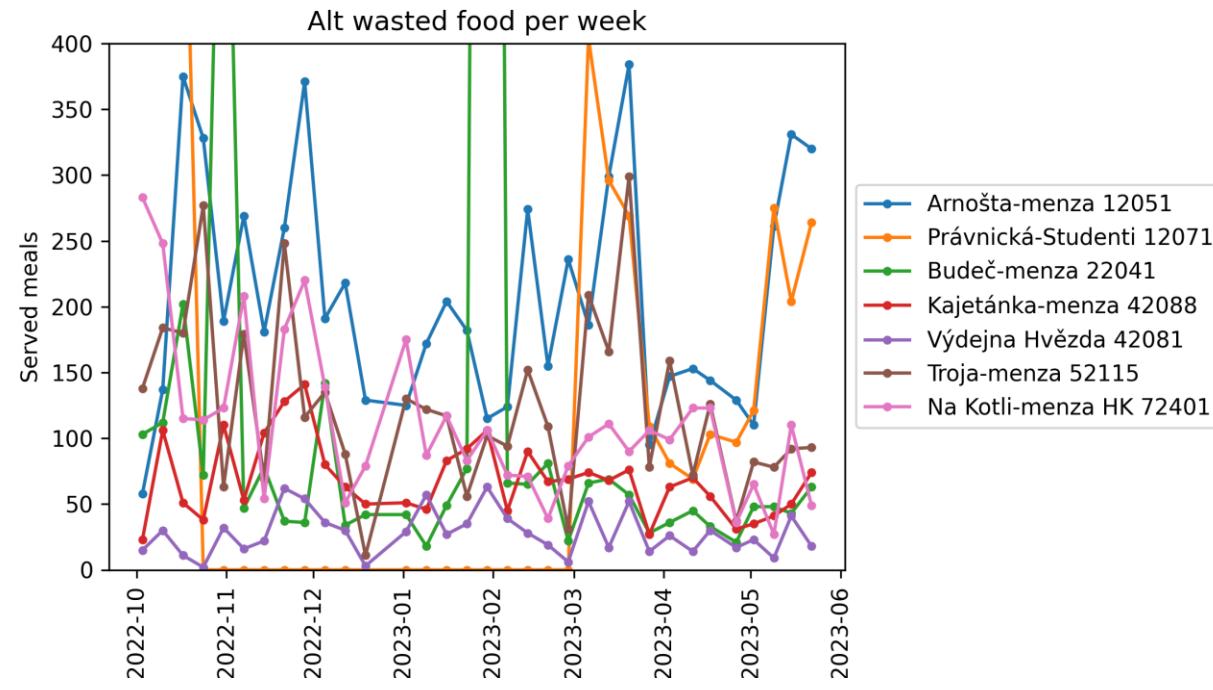
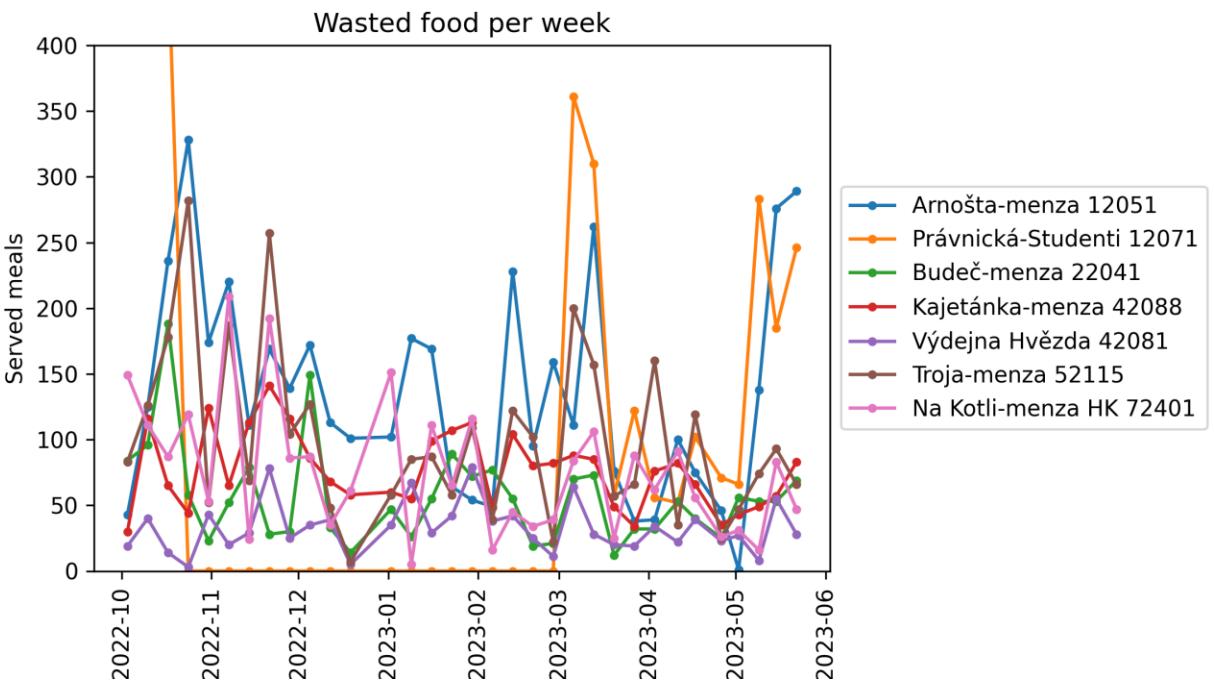


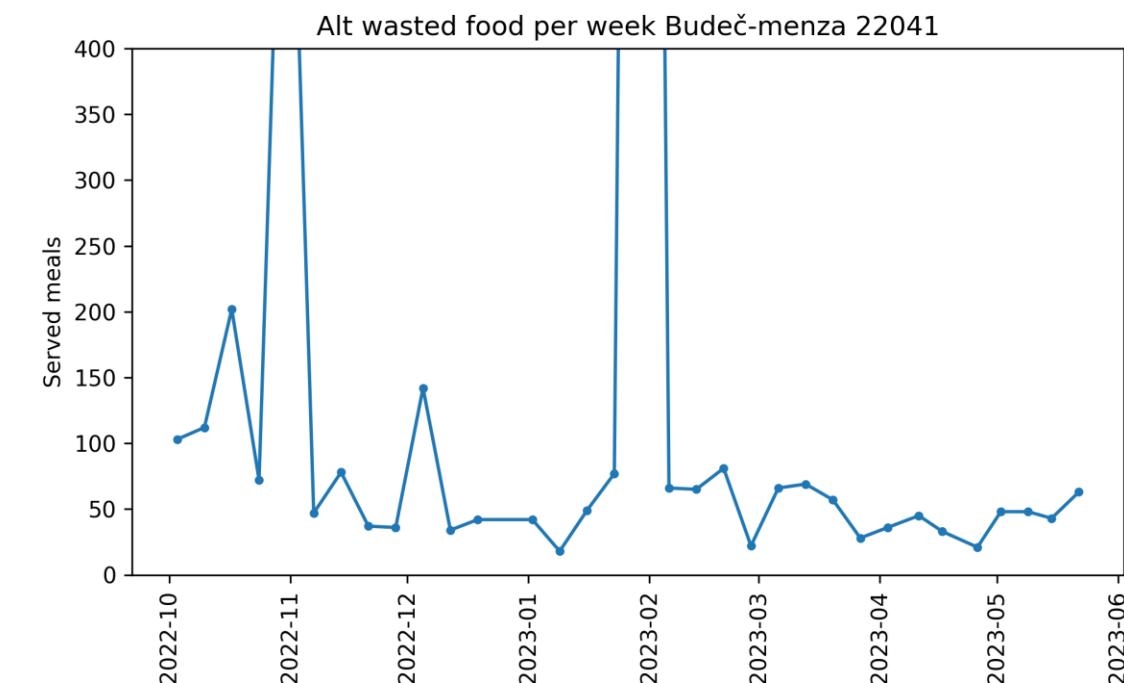
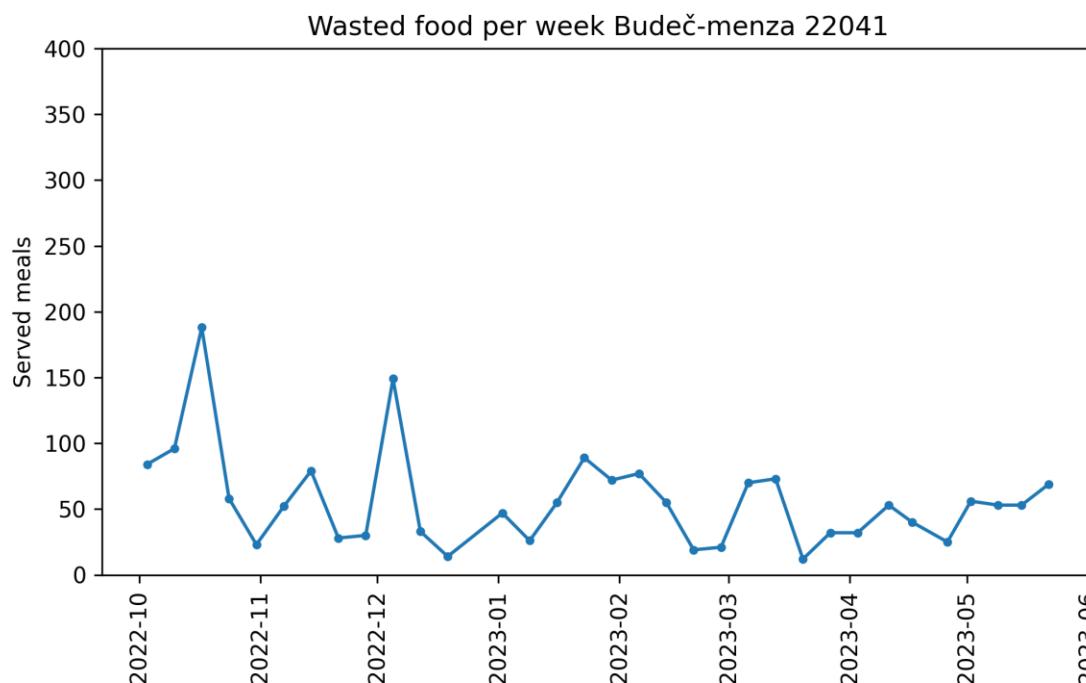
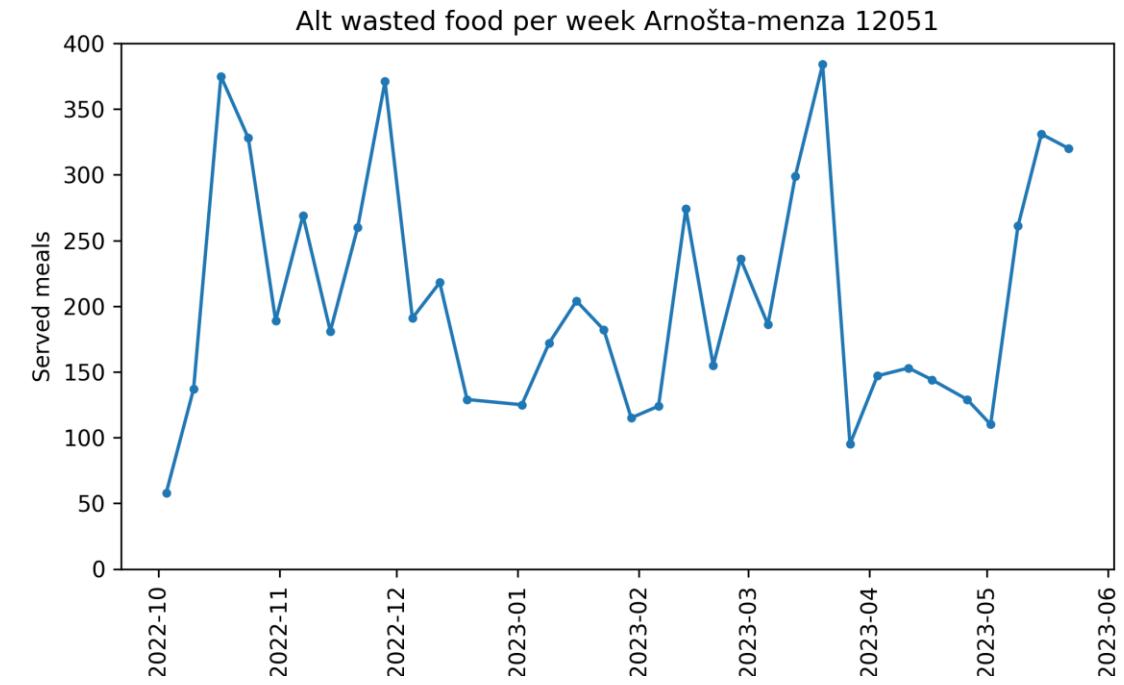
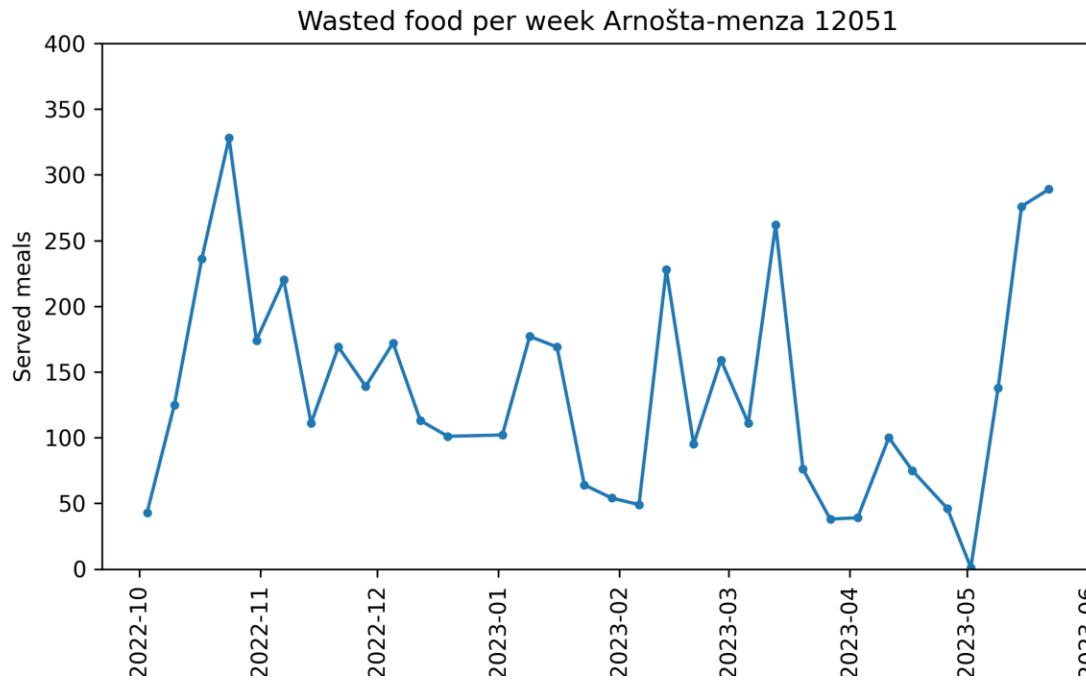
Meals served in Výdejna Hvězda 42081

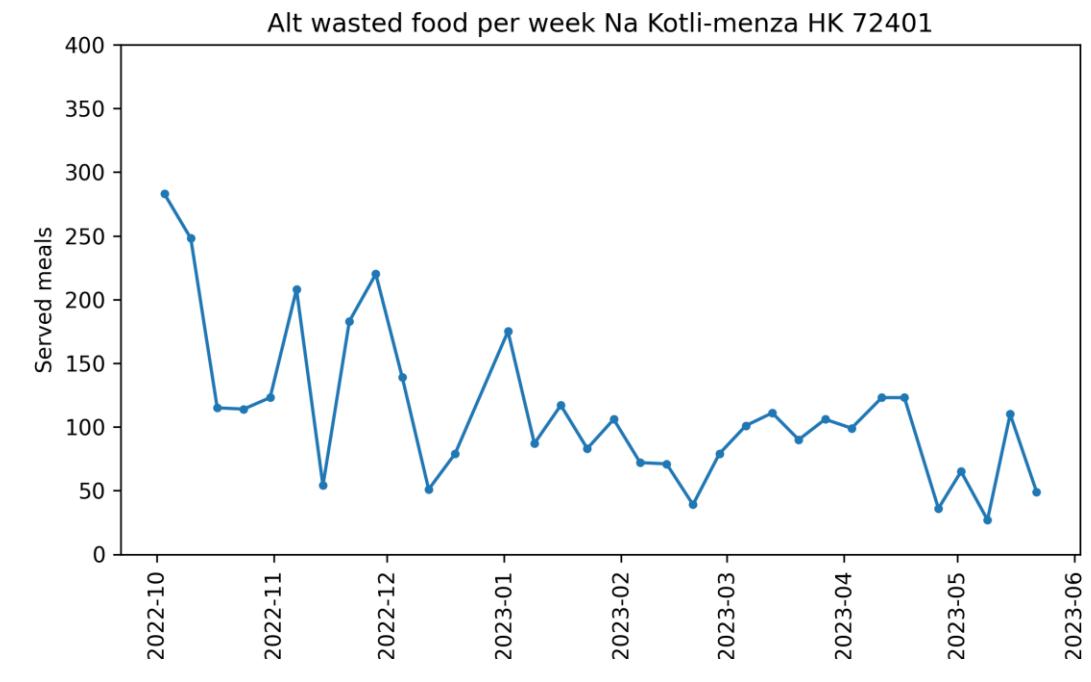
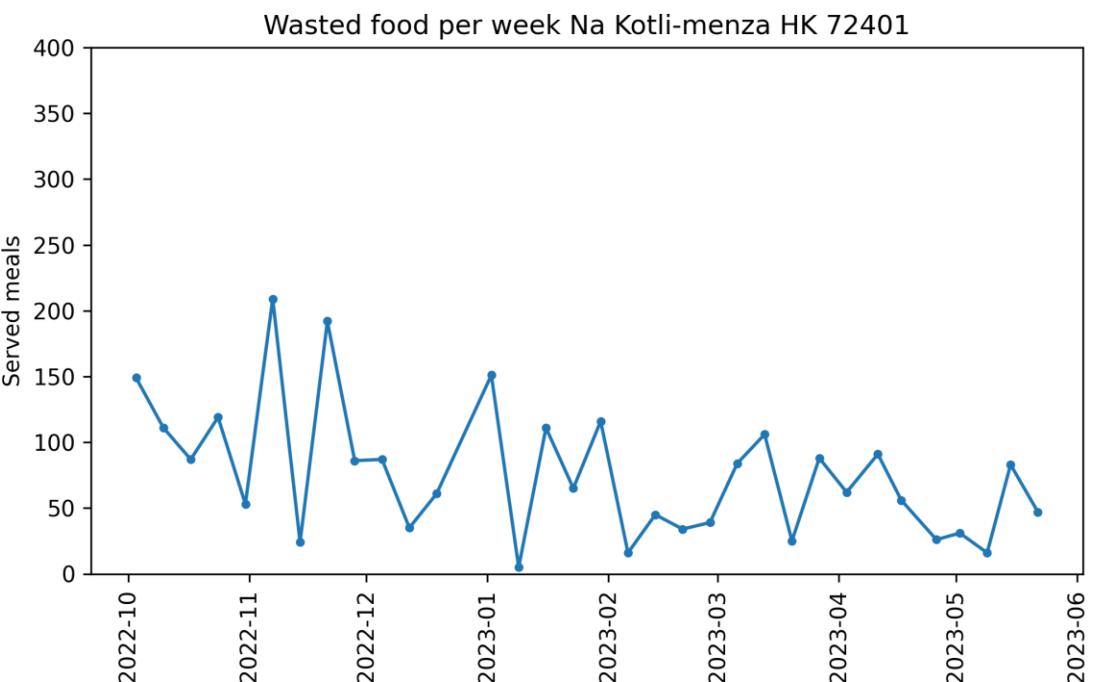
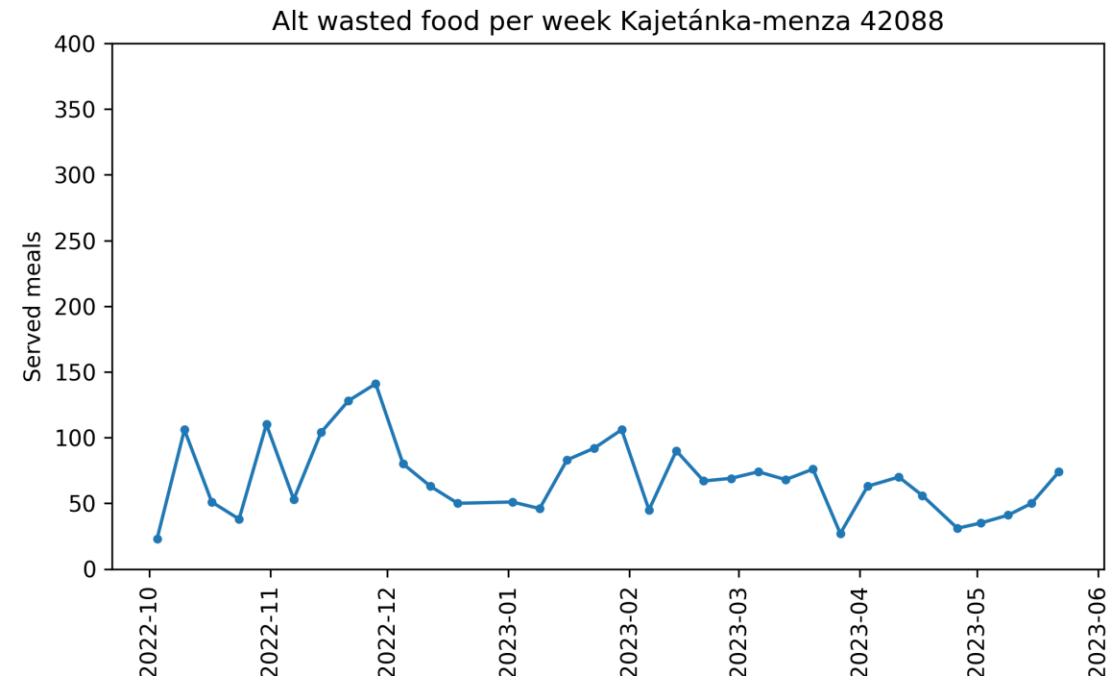
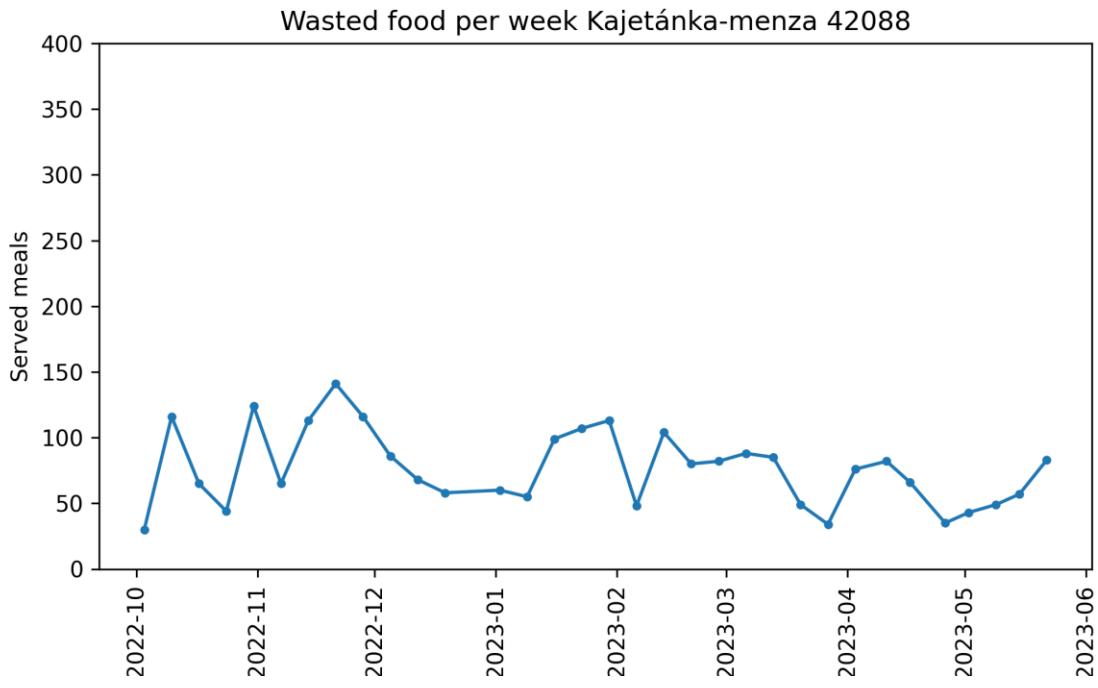


Wasted food

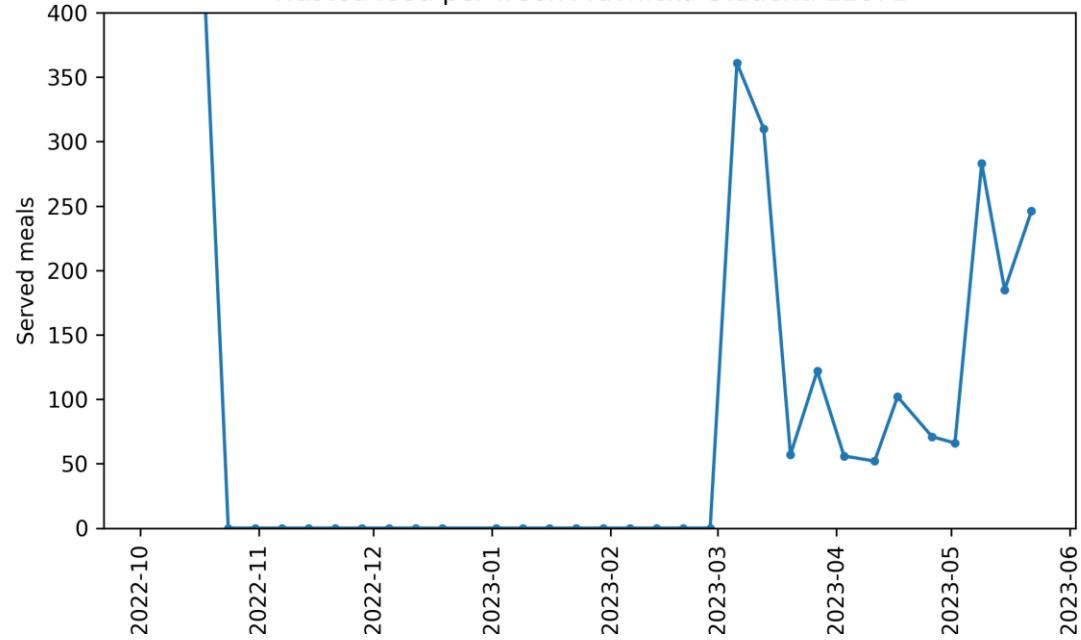
- Wasted food – number of available meals at 14:30
- Alt(ernatively computed) wasted food – last time with more than 0 available meals - 1



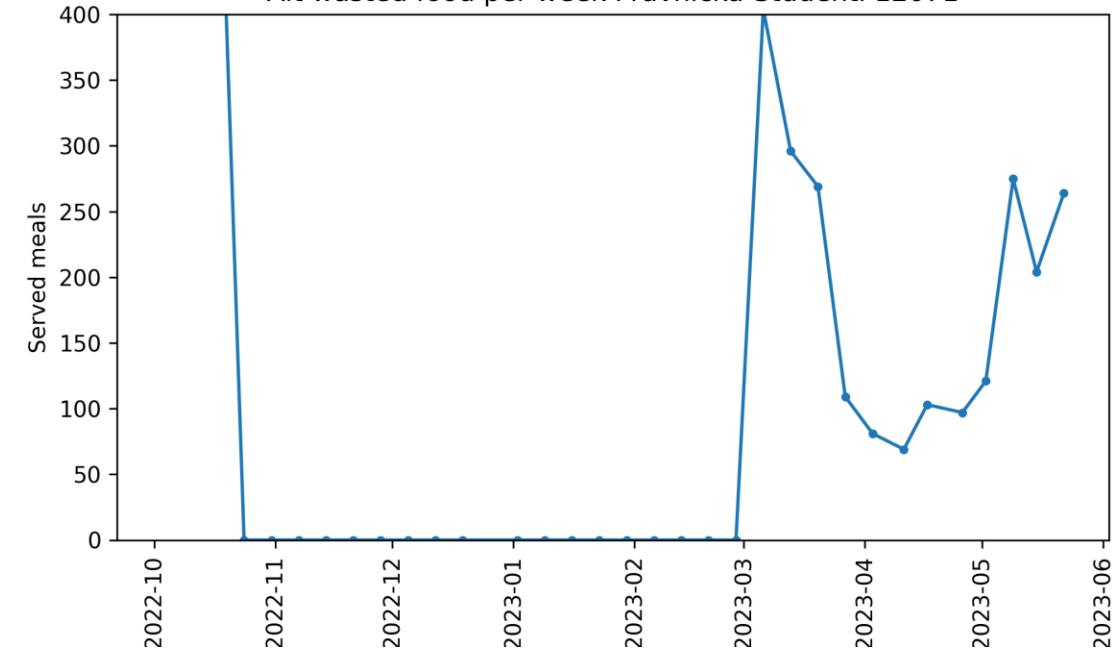




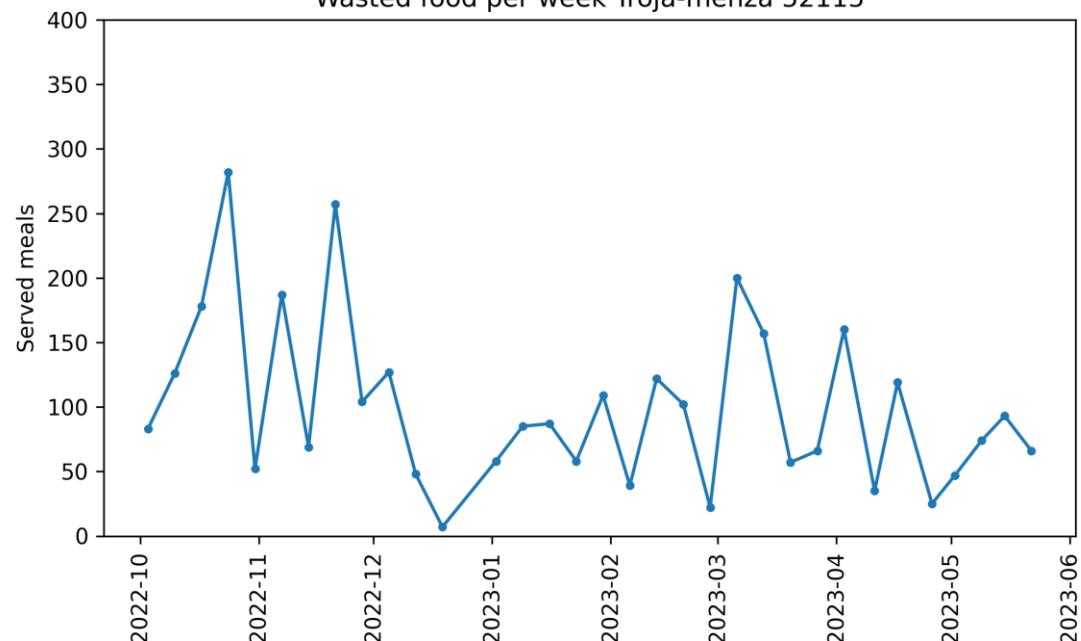
Wasted food per week Právnická-Studenti 12071



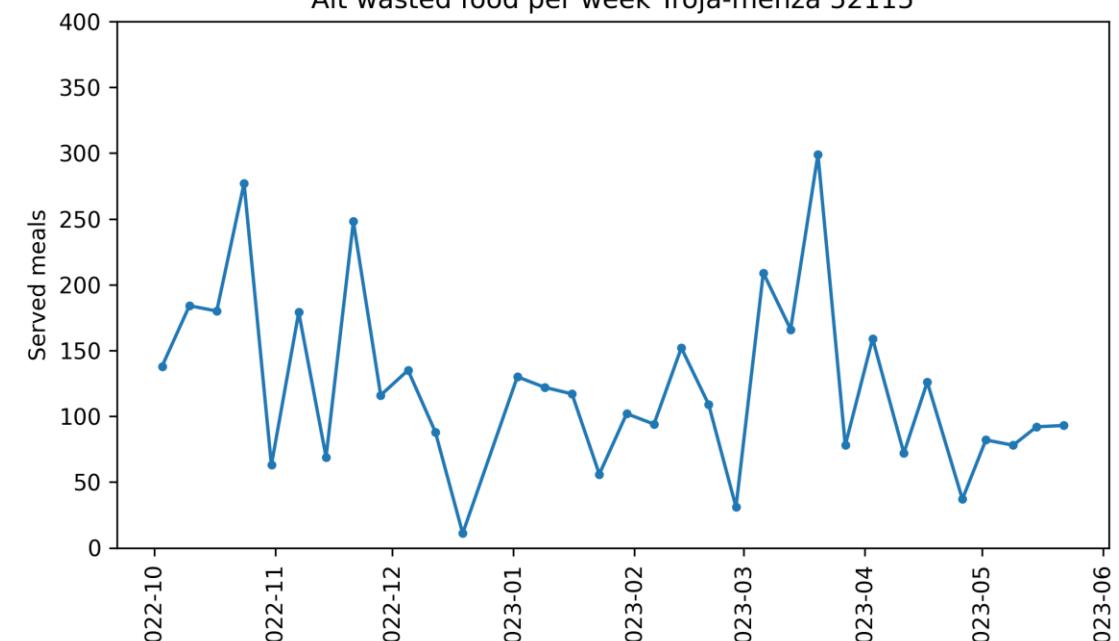
Alt wasted food per week Právnická-Studenti 12071

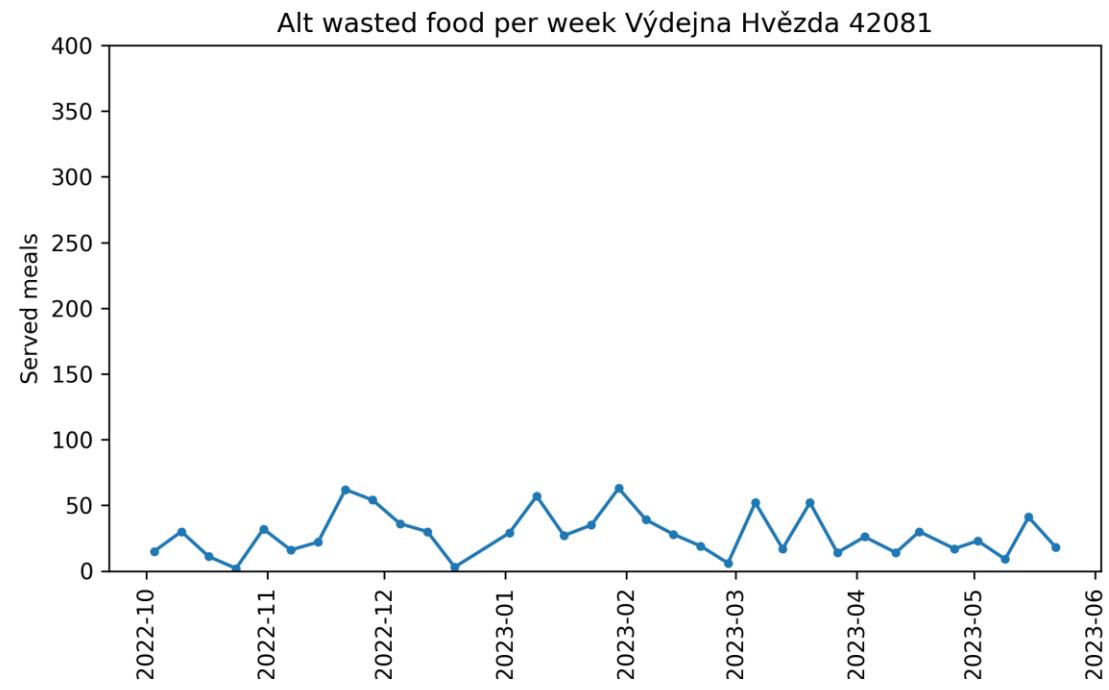
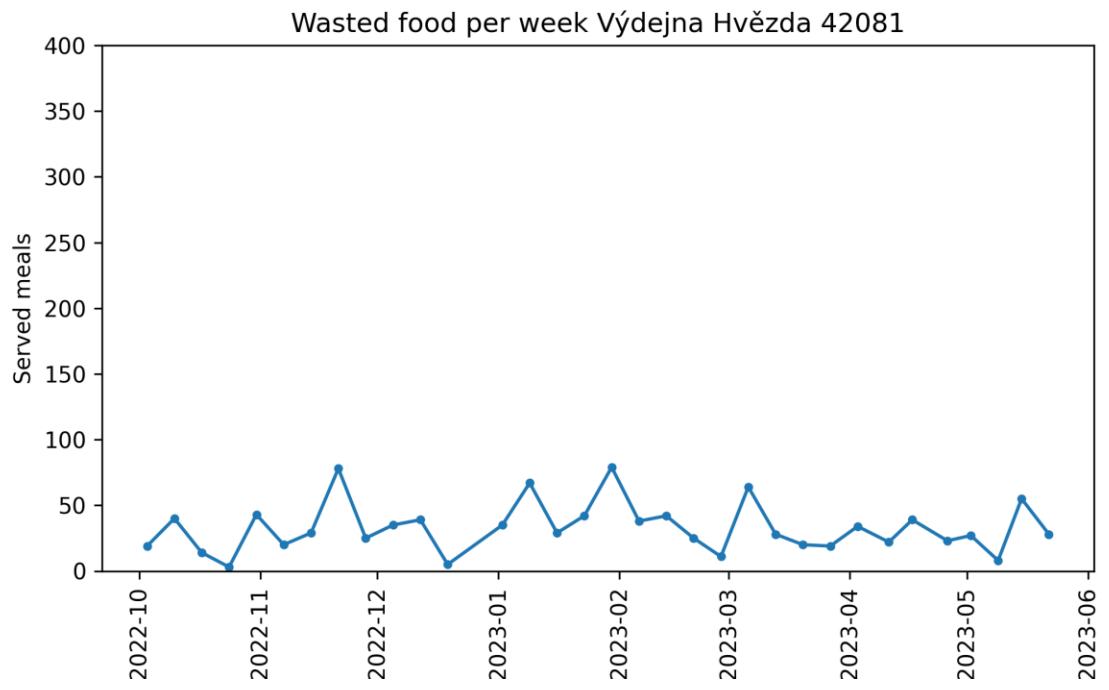


Wasted food per week Troja-menza 52115



Alt wasted food per week Troja-menza 52115

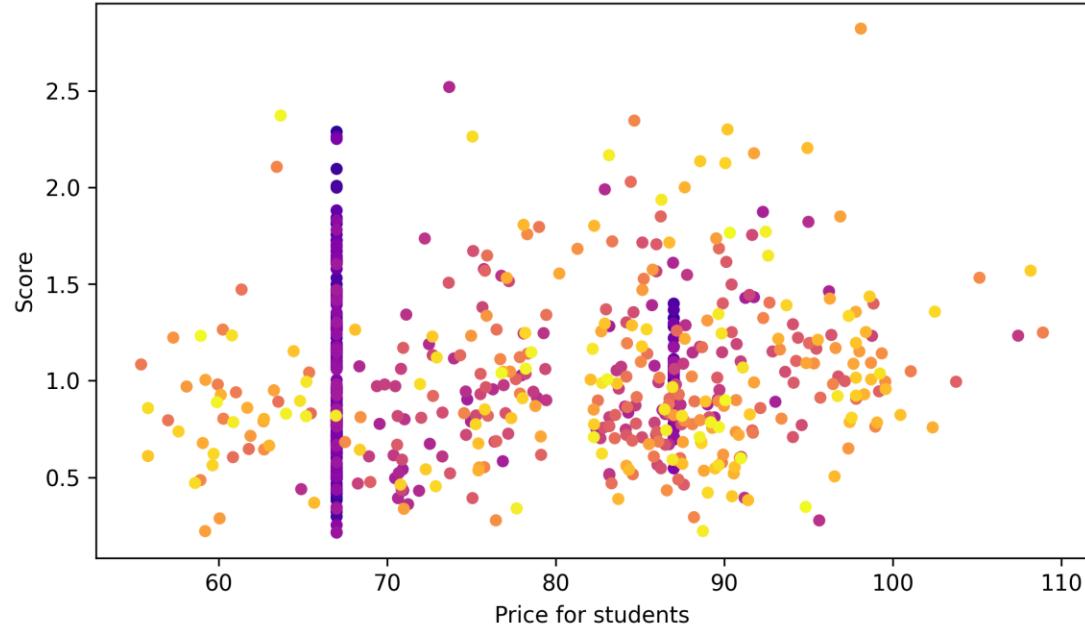




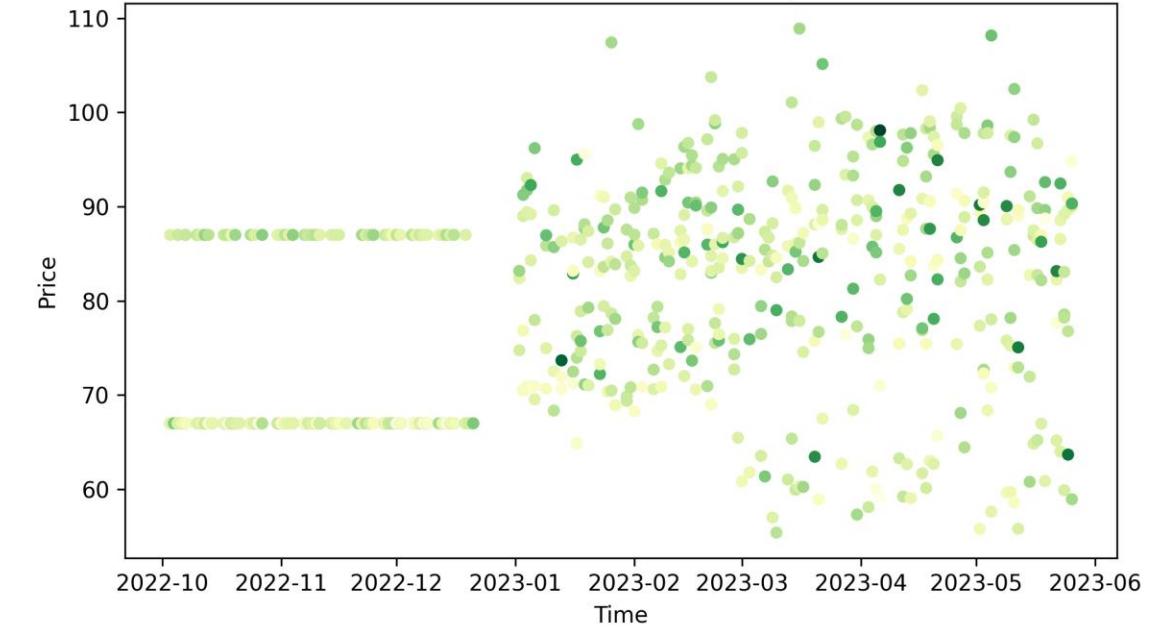
Score

- How to measure food popularity?
 - Meal often runs out between 12:00 and 13:00
 - Given by number of cooked portions, might be replenished later in small amounts
 - Different amount of students across canteens
 - Different amount of students during the year
 - Different amount of students during the week (e.g. Fridays)
 - Difference between number of available options
- For every small interval (15 minutes) compute ratio of served food option to all served food
 - Multiply by number of food options available during (almost all) the interval
 - For every food option take average of those micro-scores
 - Separately for every canteen

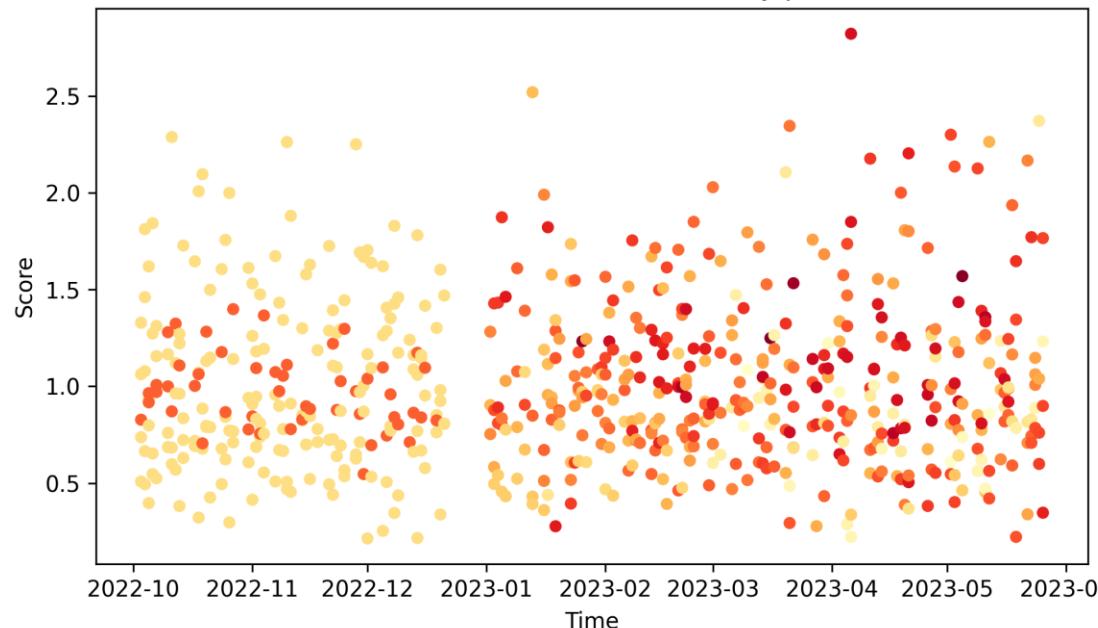
Arnošta-menza 12051 colored by time



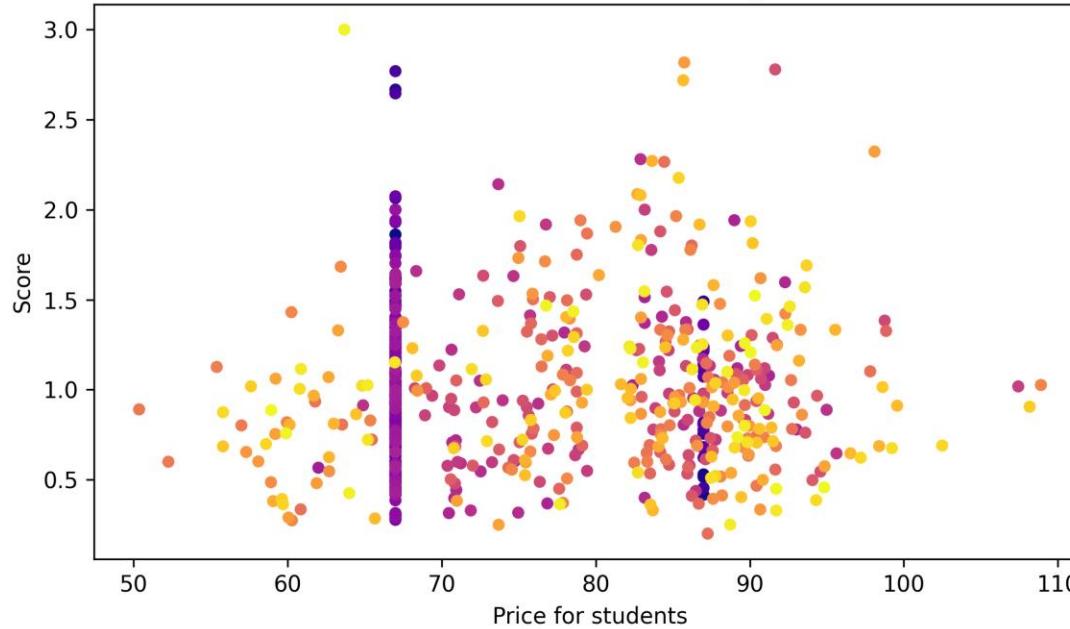
Arnošta-menza 12051 colored by score



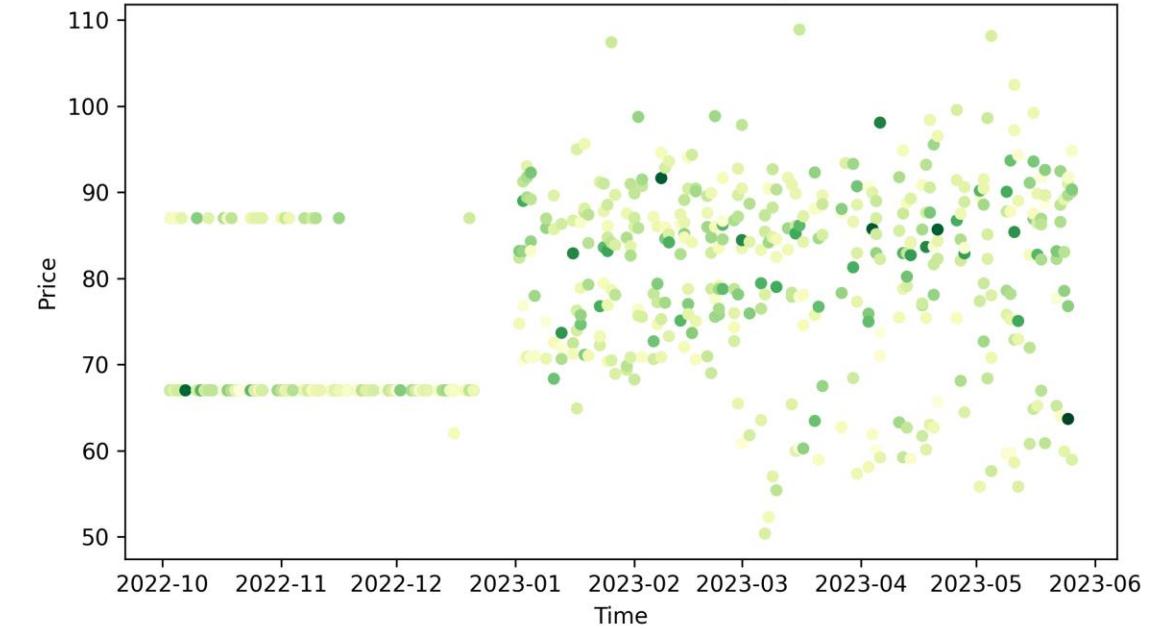
Arnošta-menza 12051 colored by price



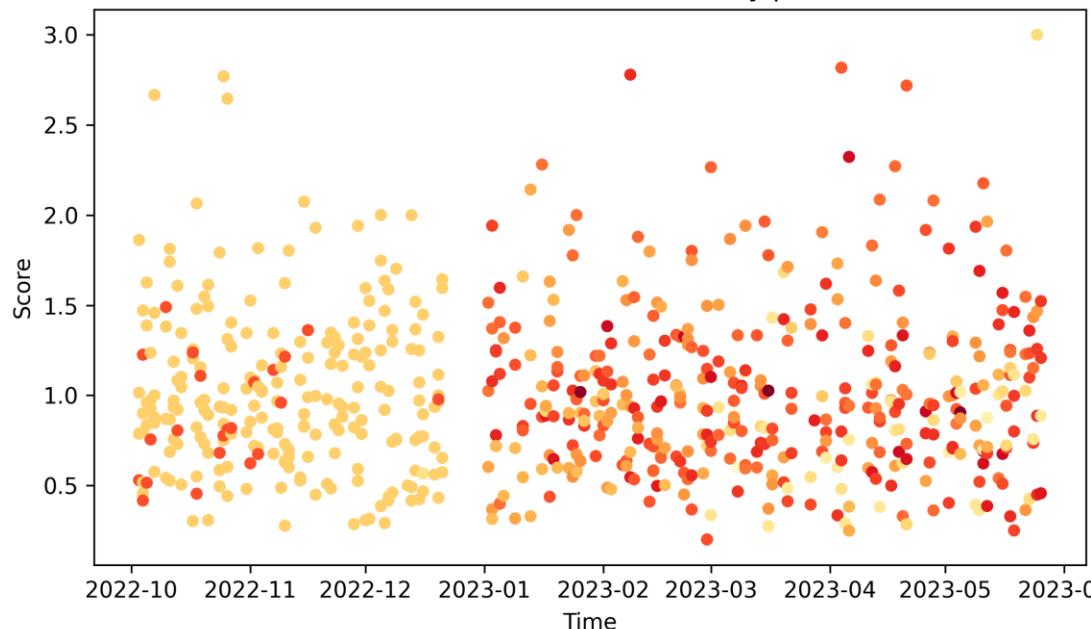
Budeč-menza 22041 colored by time



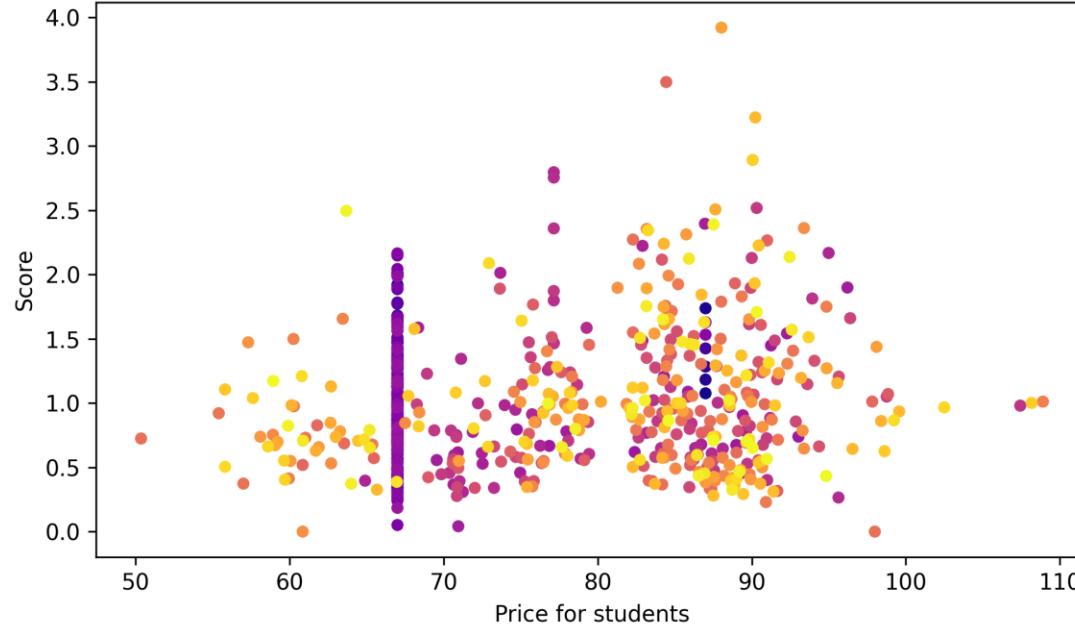
Budeč-menza 22041 colored by score



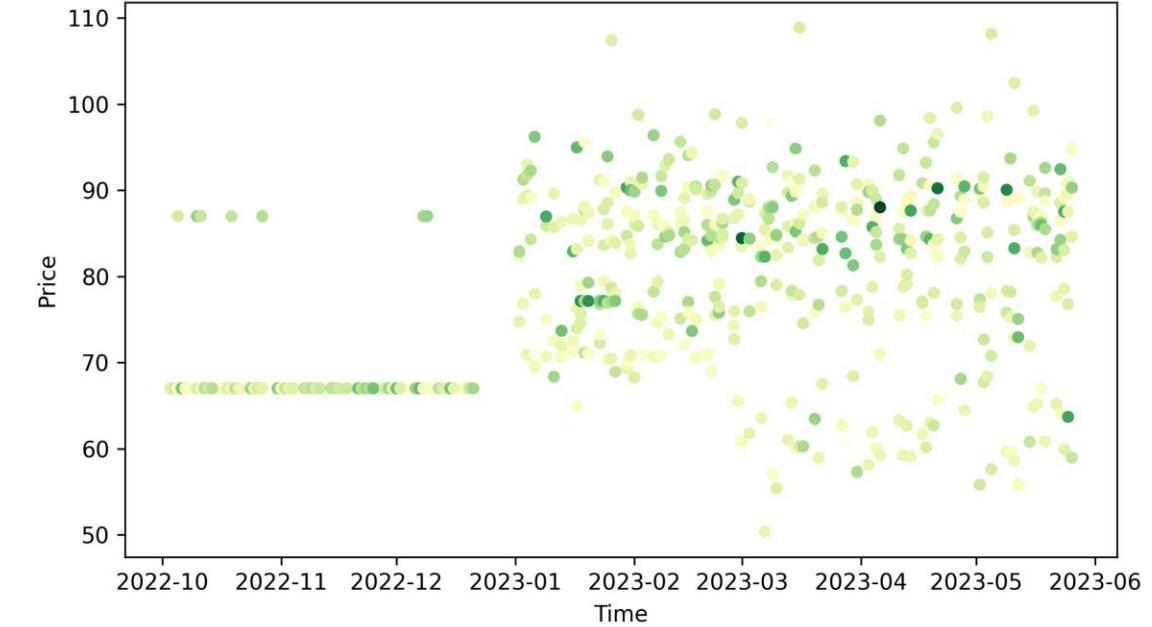
Budeč-menza 22041 colored by price



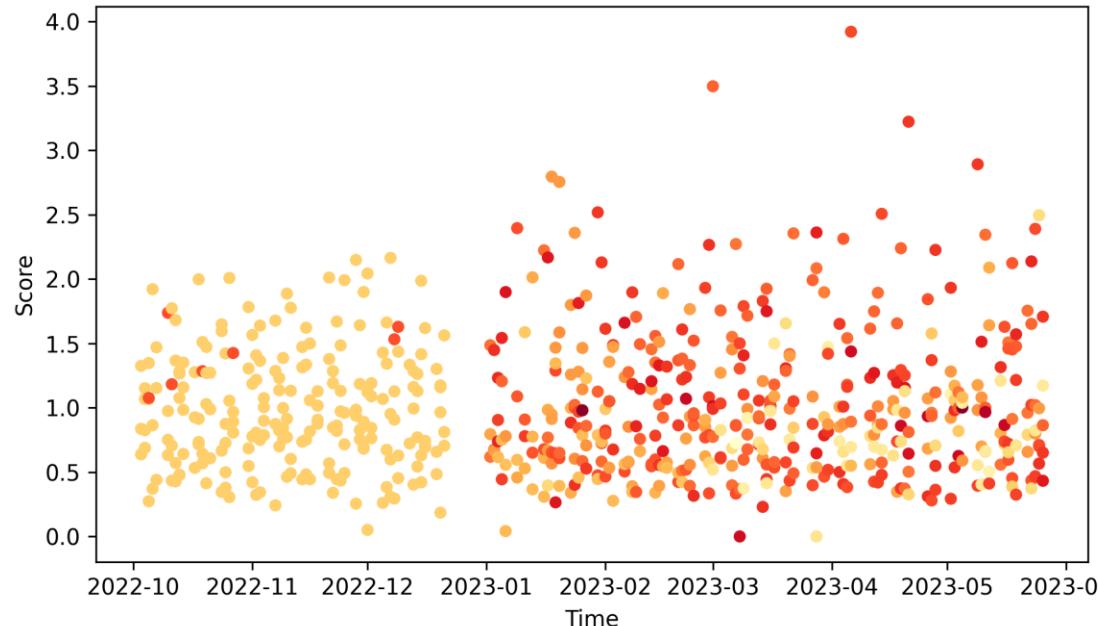
Kajetánka-menza 42088 colored by time



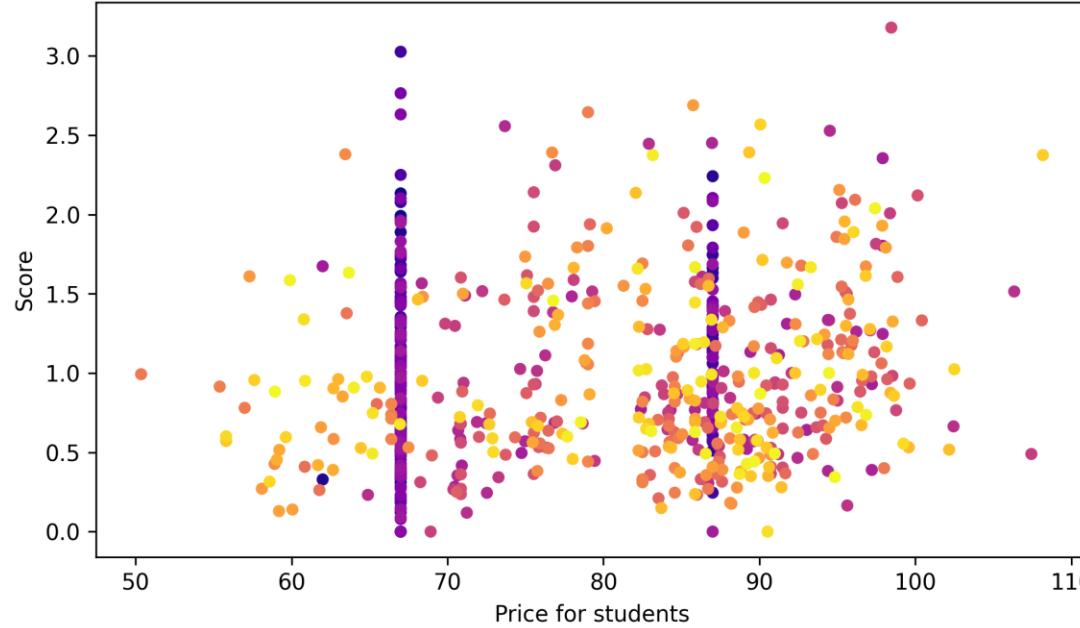
Kajetánka-menza 42088 colored by score



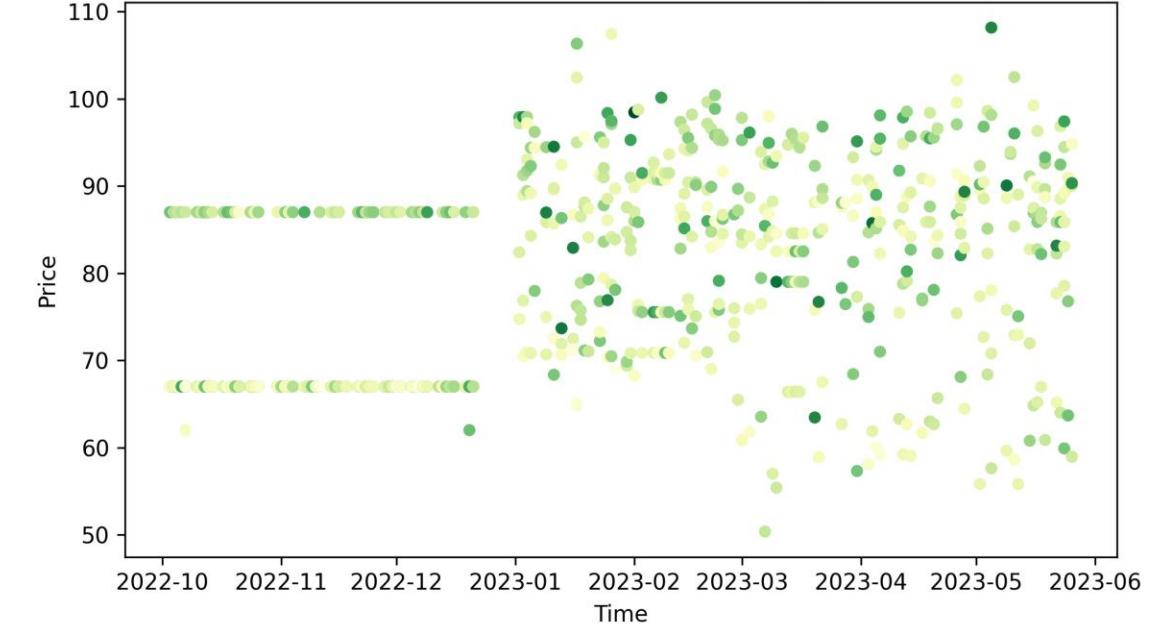
Kajetánka-menza 42088 colored by price



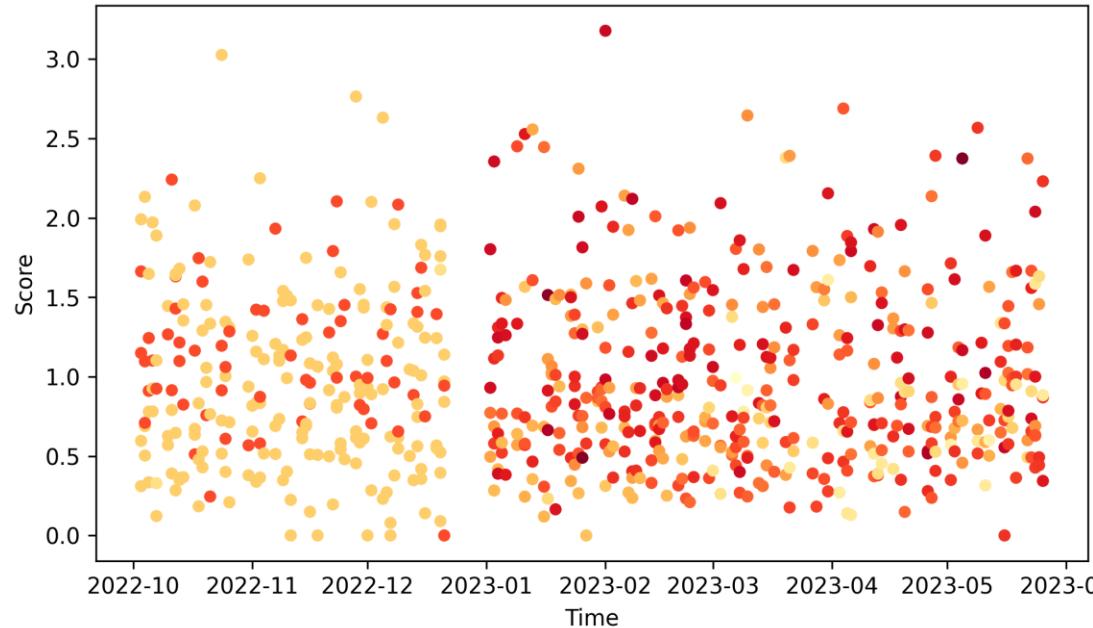
Na Kotli-menza HK 72401 colored by time



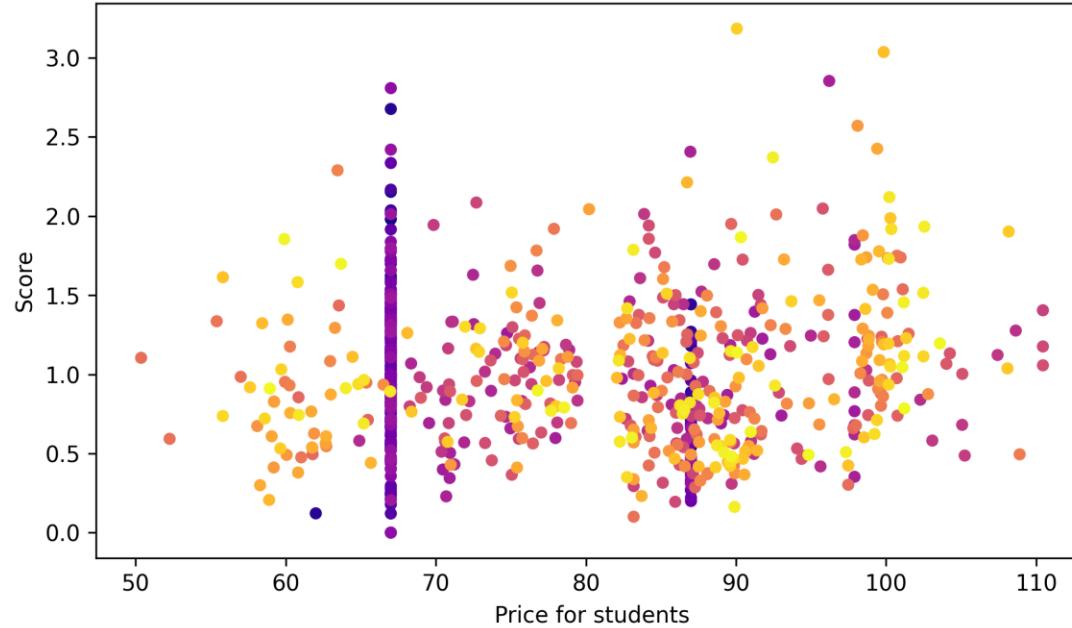
Na Kotli-menza HK 72401 colored by score



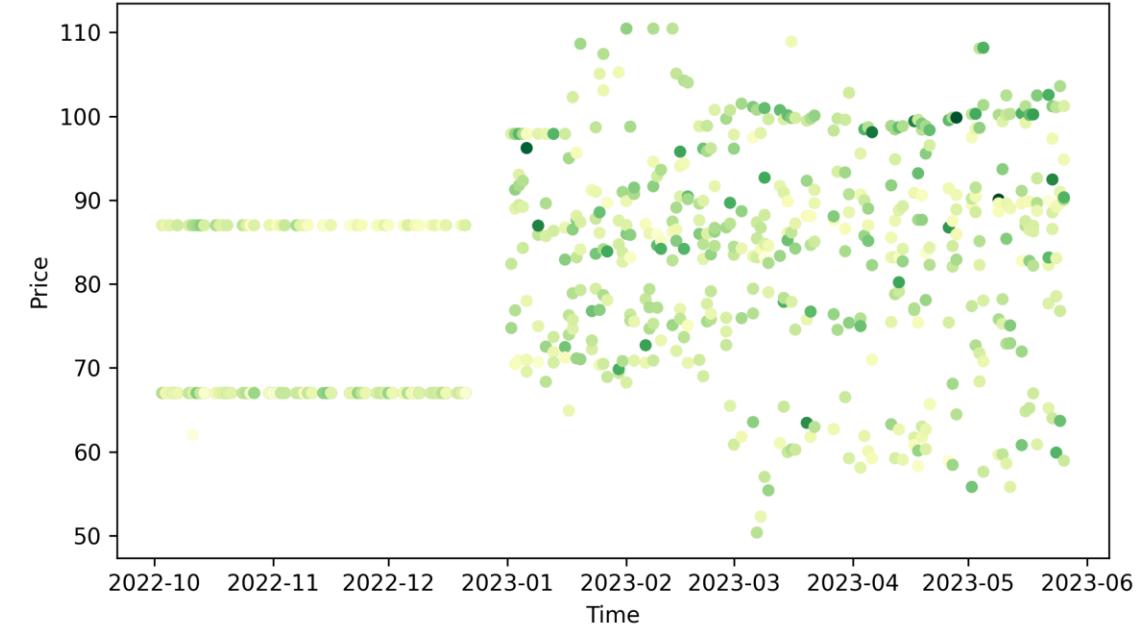
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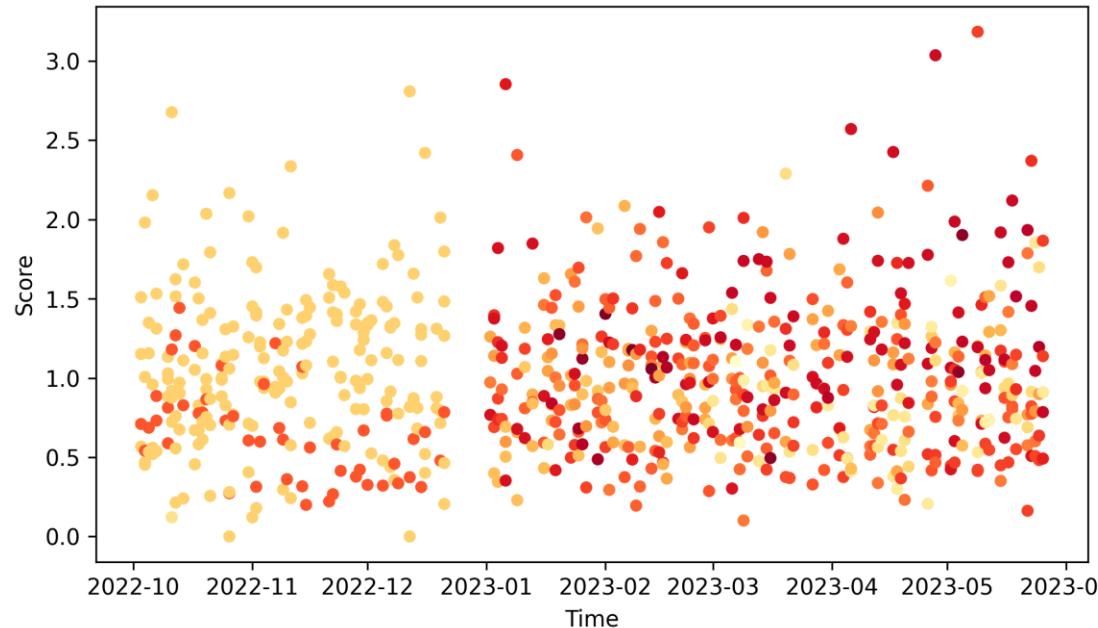
Právnická-Studenti 12071 colored by time



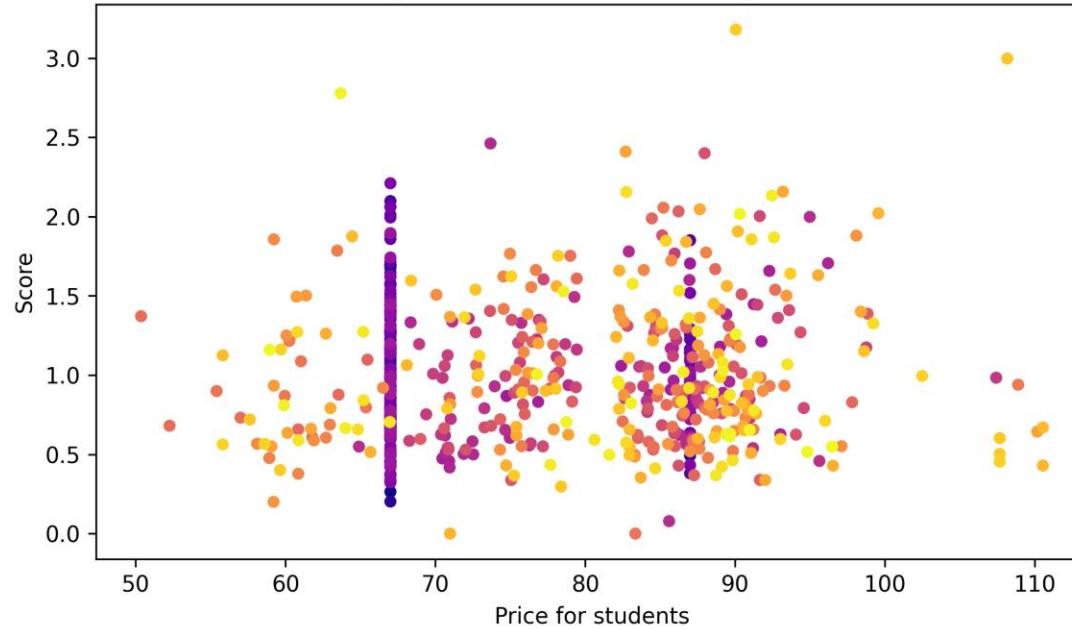
Právnická-Studenti 12071 colored by score



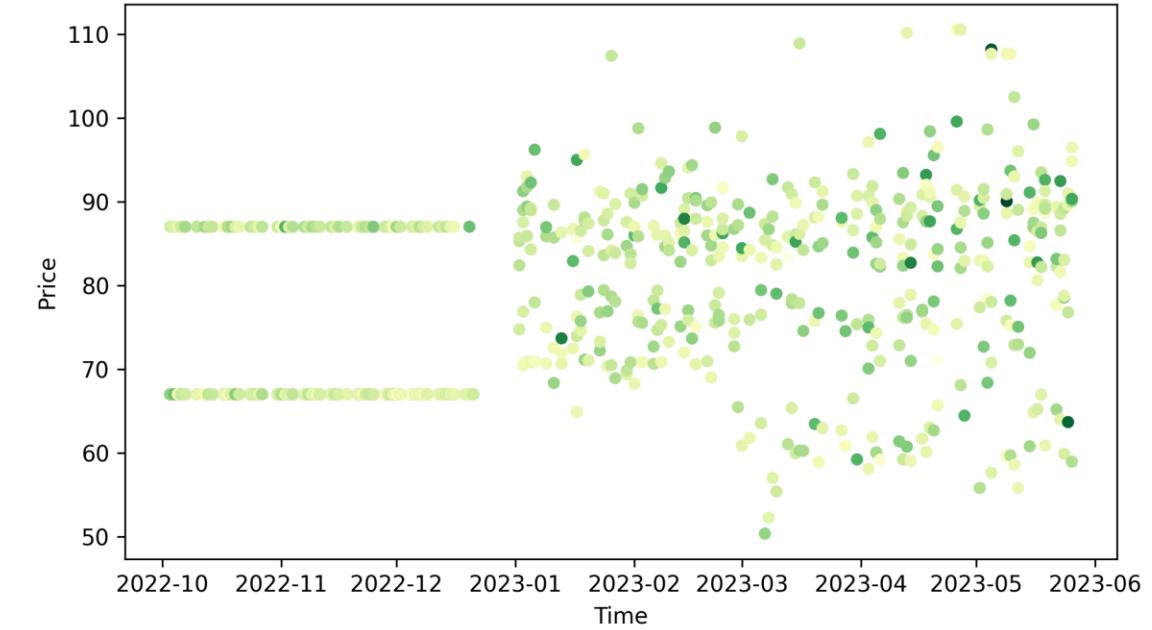
Právnická-Studenti 12071 colored by price



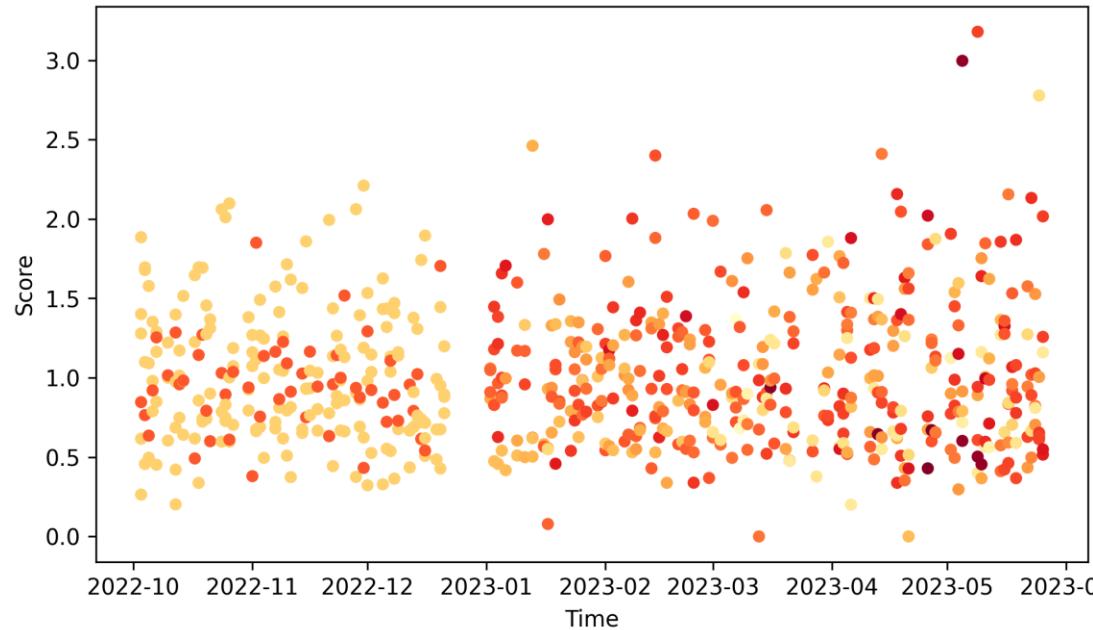
Troja-menza 52115 colored by time



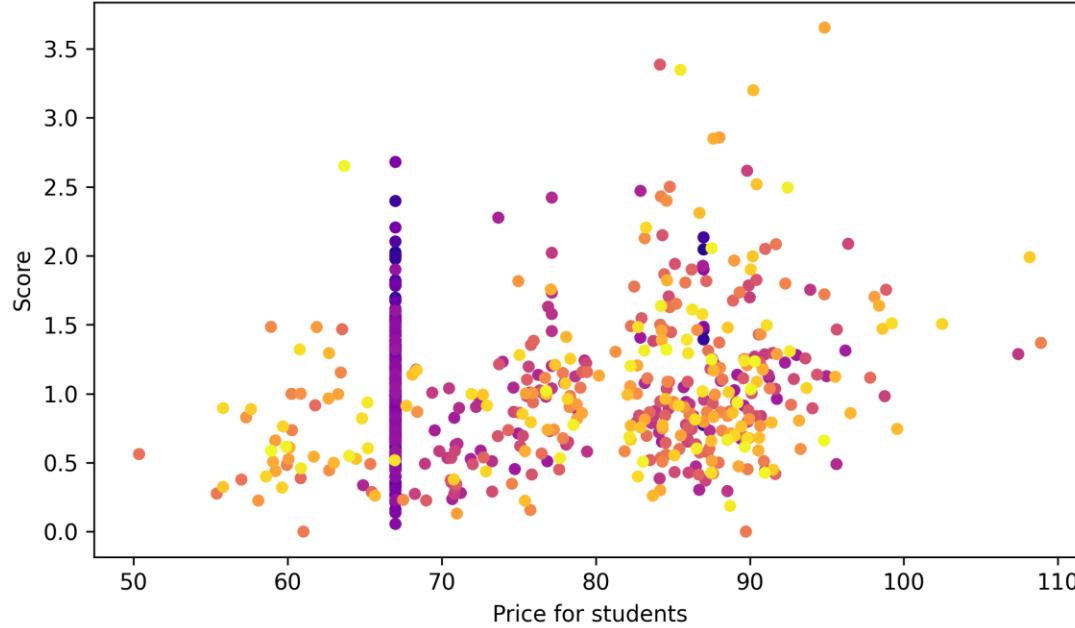
Troja-menza 52115 colored by score



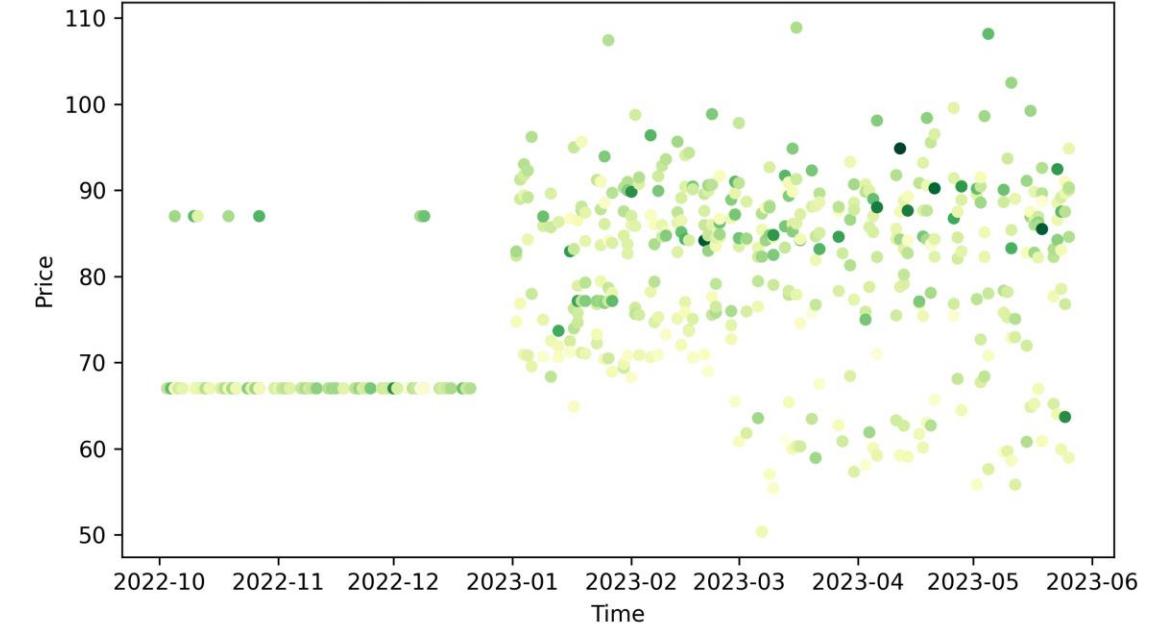
Troja-menza 52115 colored by price



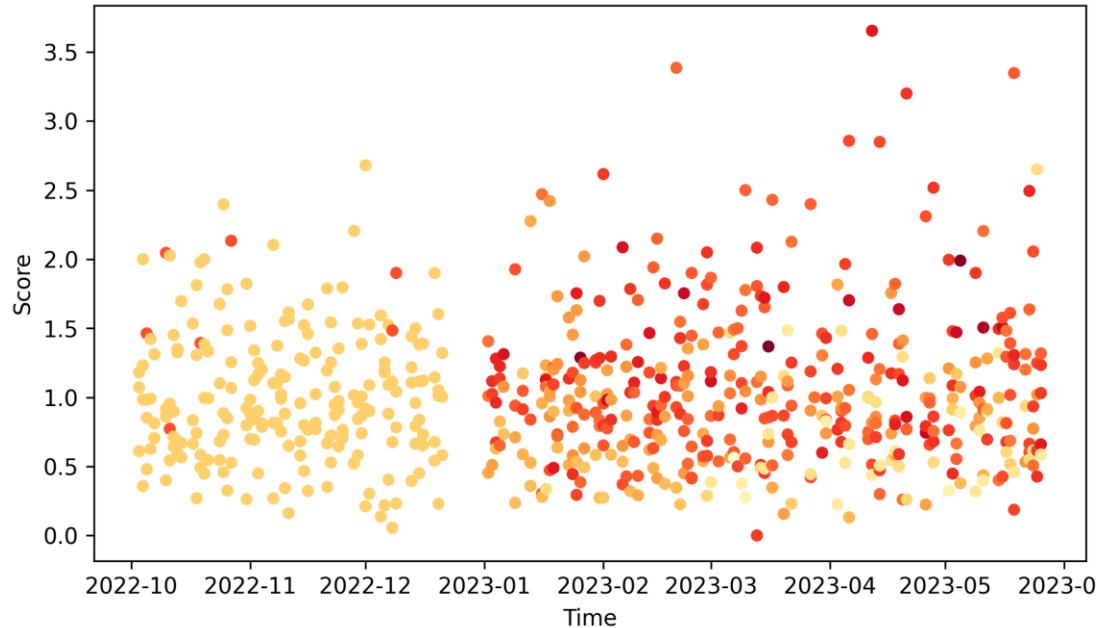
Výdejna Hvězda 42081 colored by time



Výdejna Hvězda 42081 colored by score



Výdejna Hvězda 42081 colored by price



What next?

- Grouping by the same meal name
 - Lot of very similar meal names – typos, synonyms, changes in side dish etc.
- Grouping by meal type – type of meat/vegetarian/vegan
 - Need to gather data through canteen's API
 - Possibly handcraft „sweet meals“, „junk food meals“ categories?
- Some analysis over soups?

Thank you for your attention

- Questions?