



Automated Capacity Planning

Demonstration and Walk through





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Long manual process

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Questions

Feel free to interrupt with
quick questions at any point



01

Problem at hand



Long manual process



Removed for privacy



1.5 Months

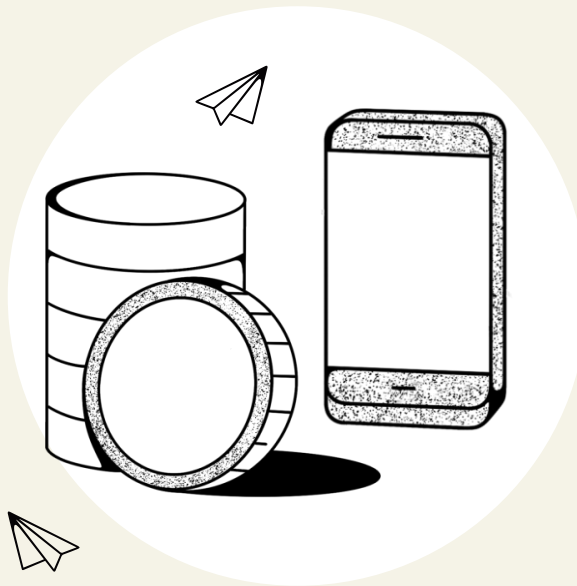
To develop

Updating

Takes a while

Managing

Many things to change that applies to a few things





1.5 Weeks

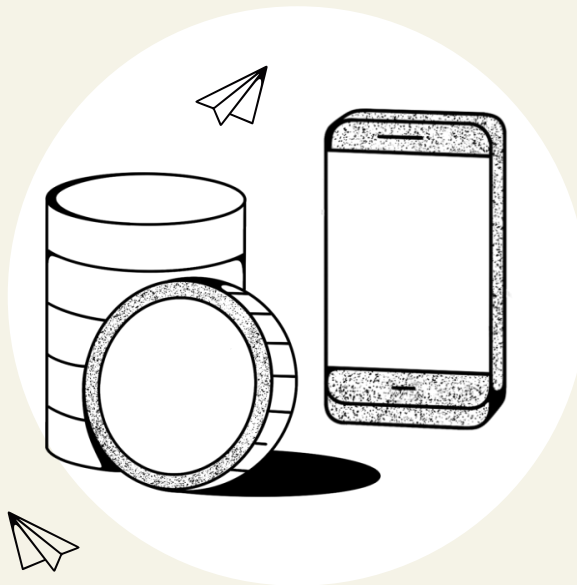
To develop

Updating

Easy and instant

Managing

A few things to change that applies to all



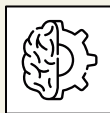


How to use



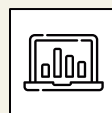
Move files

Drop the EDI and R461
In CSV format

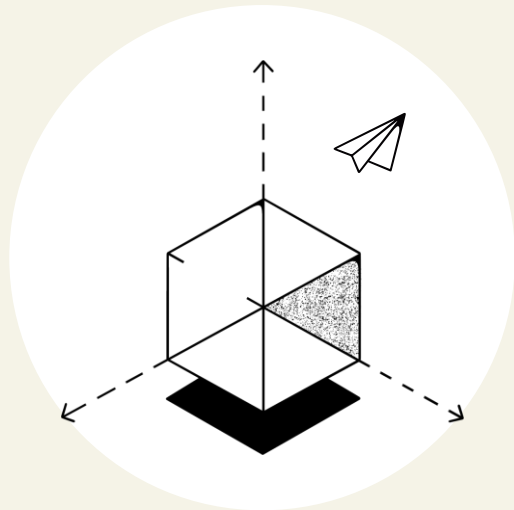


Let it run

Python script.py



Graphs ready




02

Quick Demonstration

Video

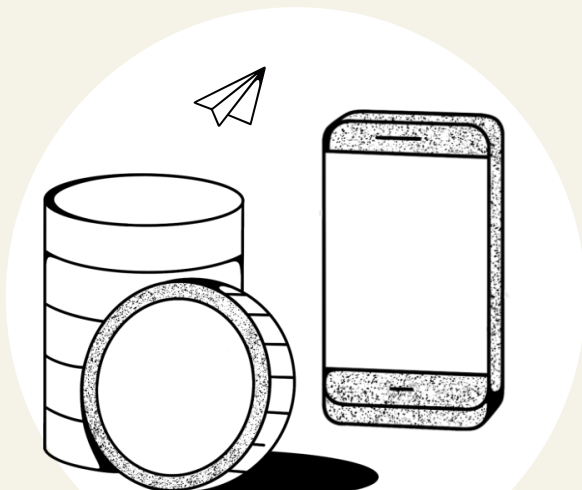


Removed for privacy



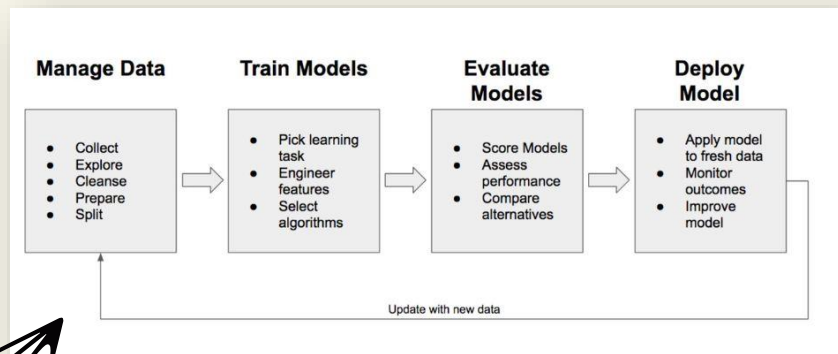
33.91 s

Run time



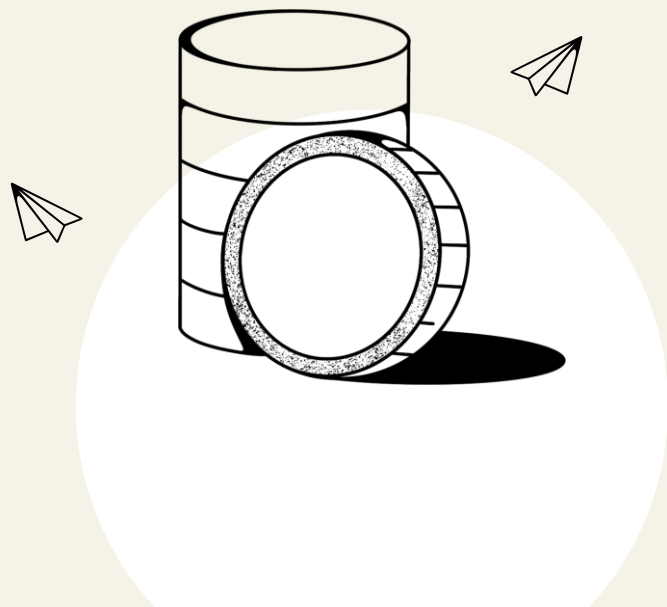


The brains:
A ML model to **predict** EDI
changes based on historical
data (changes)



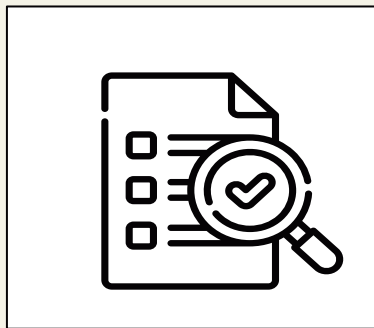


03

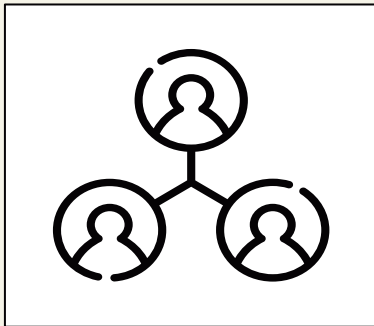


Walk through

Project walk through – the code



Cleaning



Search Algorithm

Main Issue : Inconsistent naming !

But I work around this



Removed for privacy



```
def merge_sort(arr):
    if len(arr) > 1:
        mid = len(arr) // 2
        left_half = arr[:mid]
        right_half = arr[mid:]

        merge_sort(left_half)
        merge_sort(right_half)

        merge(left_half, right_half, arr)

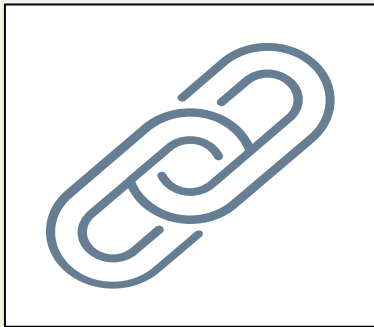
    return arr

def merge(left_half, right_half, arr):
    i = 0
    j = 0
    k = 0

    while i < len(left_half) and j < len(right_half):
        if left_half[i] < right_half[j]:
            arr[k] = left_half[i]
            i += 1
        else:
            arr[k] = right_half[j]
            j += 1
        k += 1

    while i < len(left_half):
        arr[k] = left_half[i]
        i += 1
        k += 1

    while j < len(right_half):
        arr[k] = right_half[j]
        j += 1
        k += 1
```

Combine the matches



Match Algorithm Result



Use SumIFs

to add up load hours by customer



```
=SUMIFS(  
  month_avg_hours!$D:$L,  
  month_avg_hours!$A:$A, "CAT FABRIM",  
  month_avg_hours!$C:$C, ">="&DATE(SETUPIC$A, SETUPIC$A, 1),  
  month_avg_hours!$C:$C, "<="&DATE(SETUPIC$A, SETUPIC$A, P$DZ),  
  month_avg_hours!$D:$L, $E$19  
)
```

Customer

Month

Date Range





Removed for privacy



04

Improvements

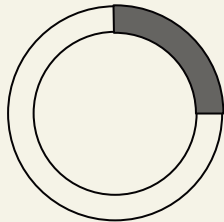
Future changes by the team



Removed for privacy

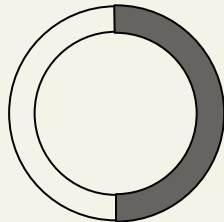


Possible Improvements



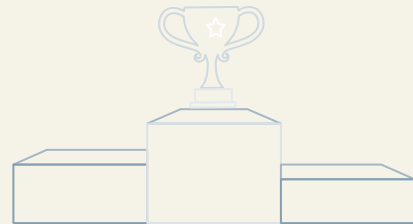
Better search algorithm

Improving speed from 34 second to maybe instant is possible



EDI and R461 importing

Automated loading instead of keeping it in the input folder



Fully automate to just peek at the graphs



05

Maintenance

Keep it working



bitbucket.org/mortal-fabrications/road-hours_script/commits/

Allen Bradley's PC...

bitbucket New work Pull requests Repositories Projects People More **Commits**

Search commits All branches

Source Commits Branches Pull requests Pipelines Deployments File issues Security Downloads Repository settings

Load Hours_script

Author	Commit	Message	Date
Heaven-Scorpio	579e3d7	feat: Load hours column added and populated	7 days ago
Heaven-Scorpio	400e707	build: gitignore and readme changed	7 days ago
Heaven-Scorpio	503d758	feat: user input requested	2 branches 2024-04-17
Heaven-Scorpio	4049f32	refactor: future proofing	2 branches 2024-04-15
Heaven-Scorpio	5792776	300000: Merge branch '3000000_07' into prod	2 branches 2024-04-15
Heaven-Scorpio	77d2f63	fix: path error fixed	2 branches 2024-04-15
Heaven-Scorpio	c50d004	docs: new on-the-website	2 branches 2024-04-15
Heaven-Scorpio	400e707	style: made the code look better	2 branches 2024-04-14
Heaven-Scorpio	c50d004	Complete. Done. That's it	2 branches 2024-04-14
Heaven-Scorpio	2044d05	Duplicated matche successfully, for commented out func	2 branches 2024-04-14
Heaven-Scorpio	400e707	new branch made to make a combine of with the matches	2 branches 2024-04-14
Heaven-Scorpio	400e707	Started work on the final combined output	2 branches 2024-04-14
Heaven-Scorpio	c50d004	Refactored search alg. some accuracy better readability	4 branches 2024-04-12
Heaven-Scorpio	400e707	Brute force approach worked. All matches found! life quest - now needs optimization	4 branches 2024-04-12
Heaven-Scorpio	400e707	new branch initiated to perfect the search alg.	4 branches 2024-04-12
Heaven-Scorpio	400e707	Boost for 3 parts all matches made	4 branches 2024-04-12
Heaven-Scorpio	400e707	95.000% successful matches made	4 branches 2024-04-12
Heaven-Scorpio	400e707	The path changed	4 branches 2024-04-12
Heaven-Scorpio	400e707	90% done putting prod to rest	4 branches 2024-04-12
Heaven-Scorpio	400e707	Temp	2024-04-12
Heaven-Scorpio	400e707	updated ignore	2024-04-12
Heaven-Scorpio	400e707	quick one	2024-04-11
Heaven-Scorpio	400e707	new branch test commit	2 branches 2024-04-11
Heaven-Scorpio	400e707	looked in	2024-04-11
Heaven-Scorpio	400e707	test: Login: maddened: think...	2024-04-11

Prev Next



Resources

- Full Demo Video
- Work Instruction how to set it up from nothing
- Common Trouble shoot erros