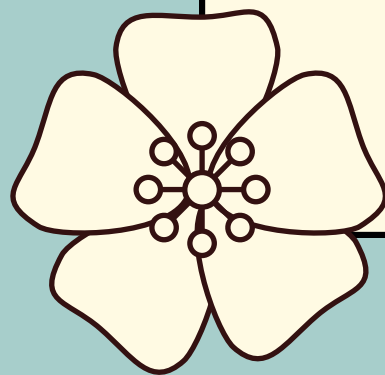


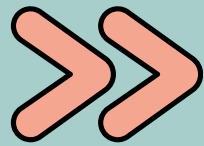


Drug The Bee

Drug Recommendation System and
Optimization using Bee Algorithm



AGENDA



Problems

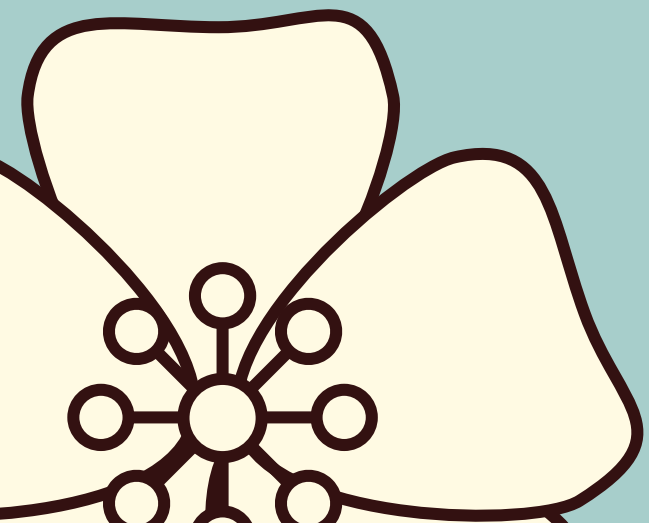
Solution

Data Preparation

Cosine Similarity

Optimization

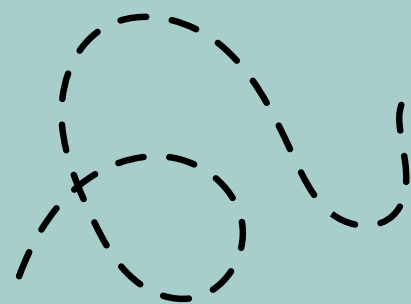
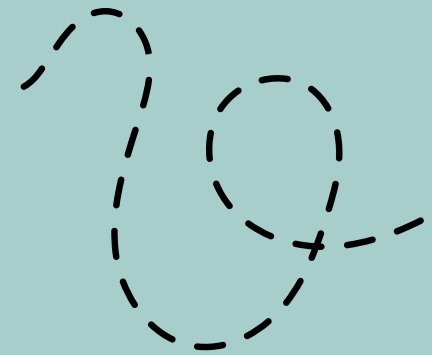
Summary





PROBLEMS

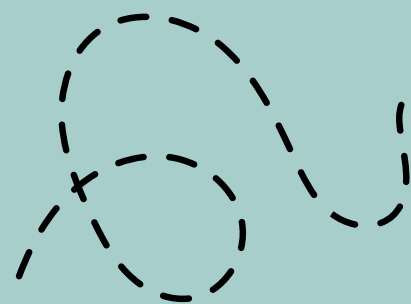
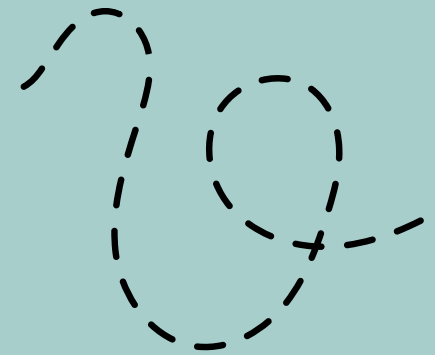
จากการสำรวจเรื่องปัญหาพบว่า มีเรื่อง
ขาดแคลนบุคลากรทางการแพทย์ อีกทั้งยัง
พบปัญหาเรื่องการจ่ายยา



Problems

บุคลากรทางการแพทย์

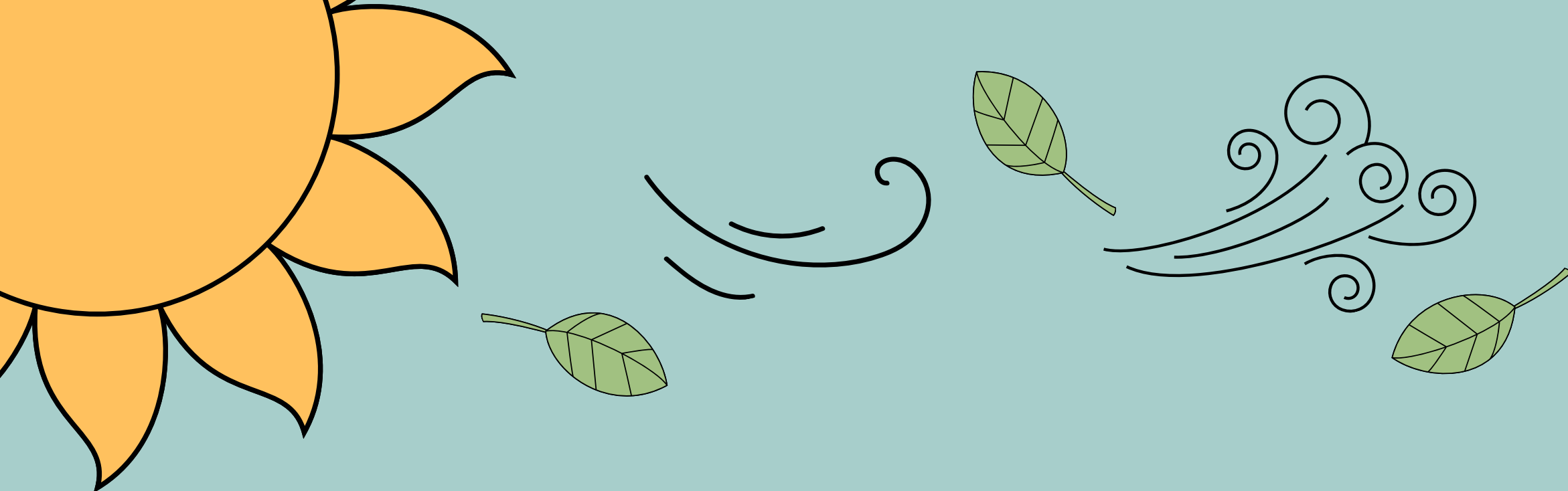




Problems

ยาไม่เพียงพอ





SOLUTION

ดังนั้นเราจึงคิดว่ามันคงจะดีนะถ้าหากมี

ระบบช่วยที่ช่วยลดความผิดพลาด
เช่น ระบบช่วยเลือกยา



DATA SOURCE



https://www.1mg.com/drugs-all-medicines

Bookmarks Instagram YouTube Google Sheets FB ChatGPT Bard Google Docs Canva Ahrefs Outlook Google Drive Paraphrasing Tool ... Google Translate (16) #a | LinkedIn > Other favorites

Limited Period Offer: Get up to 8% off + extra 15% off on medicines & more offers. [Explore](#)

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Health Resource Center Vitamins & Nutrition Personal Care Healthcare Devices Ayurveda Products Diabetes Health Conditions Homeopathy Featured Covid Essentials

Medicine Index starting with - A [Medicines can only be ordered...](#)

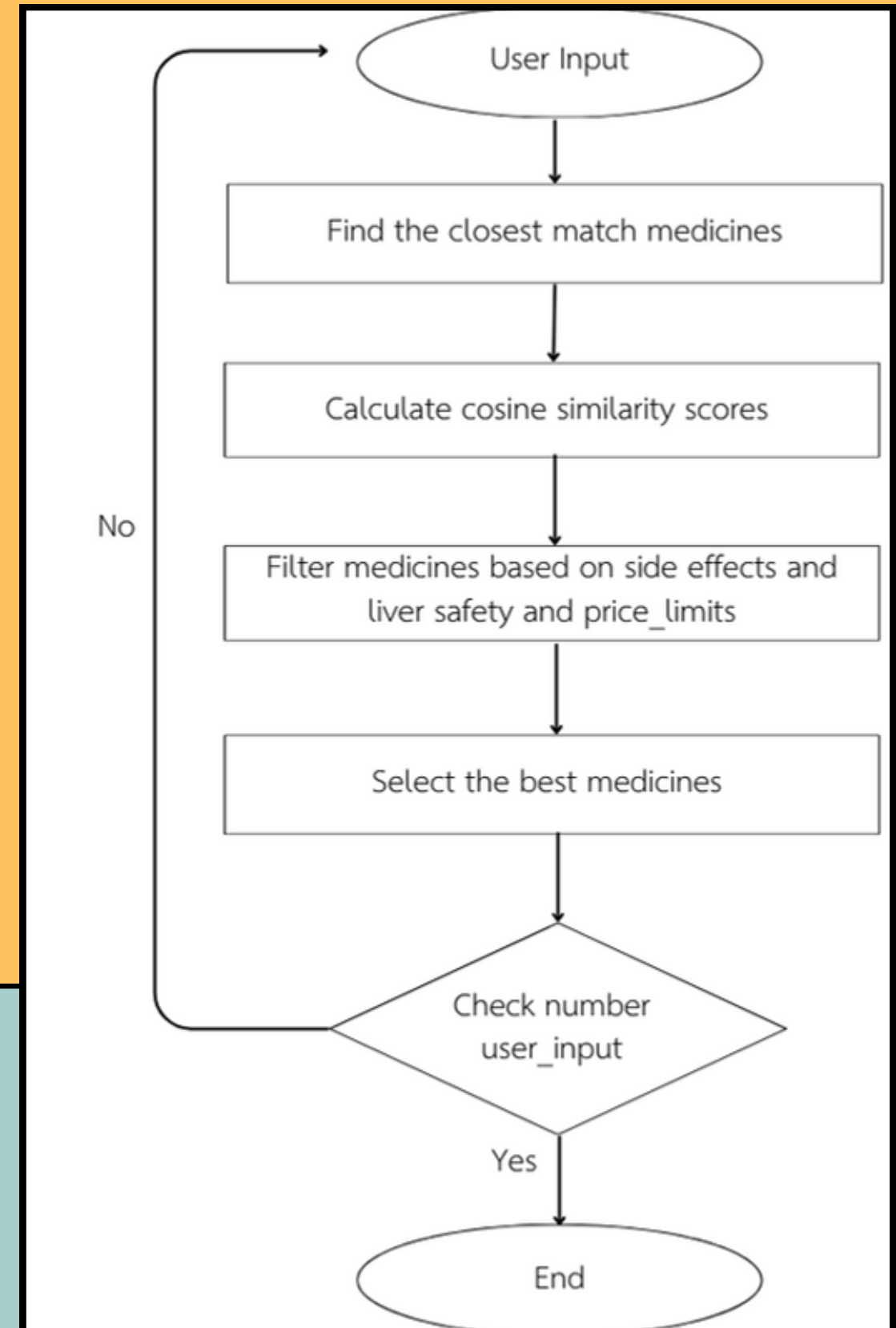
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Showing 1-30 of 10000 results

Avastin 100mg Injection Prescription Required vial of 1 Injection Roche Products India Pvt Ltd Bevacizumab (100mg) MRP ₹33863 ADD	Actorise 40 Injection Prescription Required prefilled syringe of 0.4 ml Injection Cipla Ltd Darbepoetin alfa (40mcg) MRP ₹2928.2 ADD	Actorise 25 Injection Prescription Required prefilled syringe of 0.42 ml Injection Cipla Ltd Darbepoetin alfa (25mcg) MRP ₹1815 ADD
Actorise 60 Injection Prescription Required prefilled syringe of 0.3 ml Injection Cipla Ltd Darbepoetin alfa (60mcg) MRP ₹4235 ADD	Azel 80 Capsule Prescription Required strip of 14 capsules Dr Reddy's Laboratories Ltd Enzalutamide (80mg) MRP ₹8700 ADD	Avastin 400mg Injection Prescription Required vial of 16 ml Injection Roche Products India Pvt Ltd Bevacizumab (400mg) MRP ₹123506 ADD
Azel 40mg Capsule Prescription Required strip of 28 capsules Dr Reddy's Laboratories Ltd Enzalutamide (40mg) MRP ₹8700 ADD	Actorise 200 Injection Prescription Required prefilled syringe of 0.4 ml Injection Cipla Ltd Darbepoetin alfa (200mcg) MRP ₹13642.75 ADD	Actorise 100 Injection Prescription Required prefilled syringe of 0.5 ml Injection Cipla Ltd Darbepoetin alfa (100mcg) MRP ₹7320.5 ADD
Azacytin Injection Prescription Required vial of 1 Injection MRP ₹5079.5	Alecensa 150mg Capsule Prescription Required box of 7 strips MRP ₹124607	Aromasin 25mg Tablet Prescription Required strip of 15 tablets MRP ₹5873.47

SOLUTION

Drug Recommender using Cosine similarity.

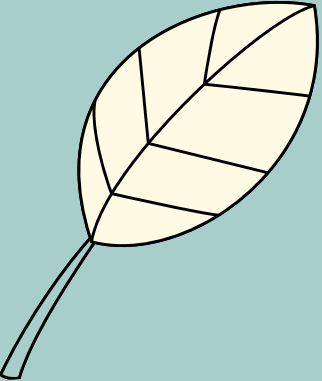
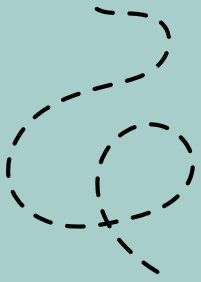
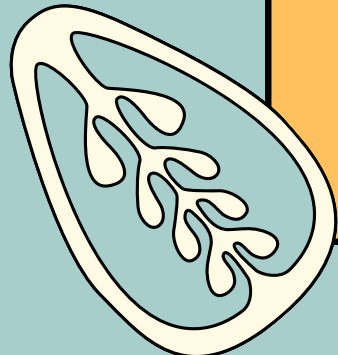
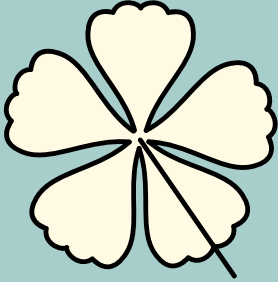
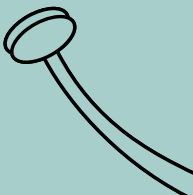
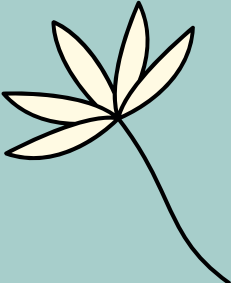
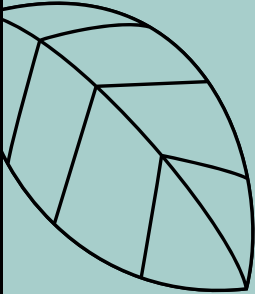
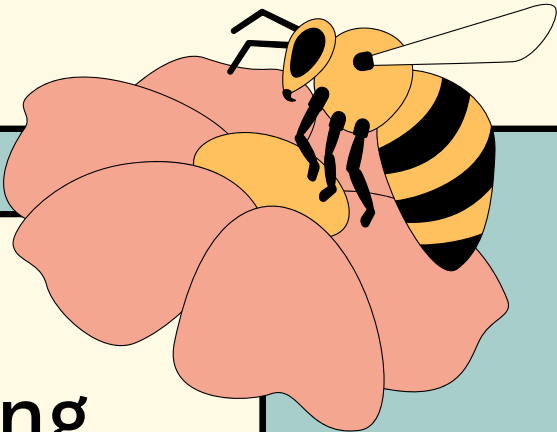


DATA UNDERSTANDING

Overview

21 attributes

<ul style="list-style-type: none">• Web-scraper-order• Web-scraper-url• Link• Link-href• Name• Uses• Price	<ul style="list-style-type: none">• Pregnancy• Breastfeeding• Driving• Kidney• Liver• Poor• Excellent
<ul style="list-style-type: none">• Composition• Side_effects• Alcohol	<ul style="list-style-type: none">• Average• How_to_use• Status• manufacture



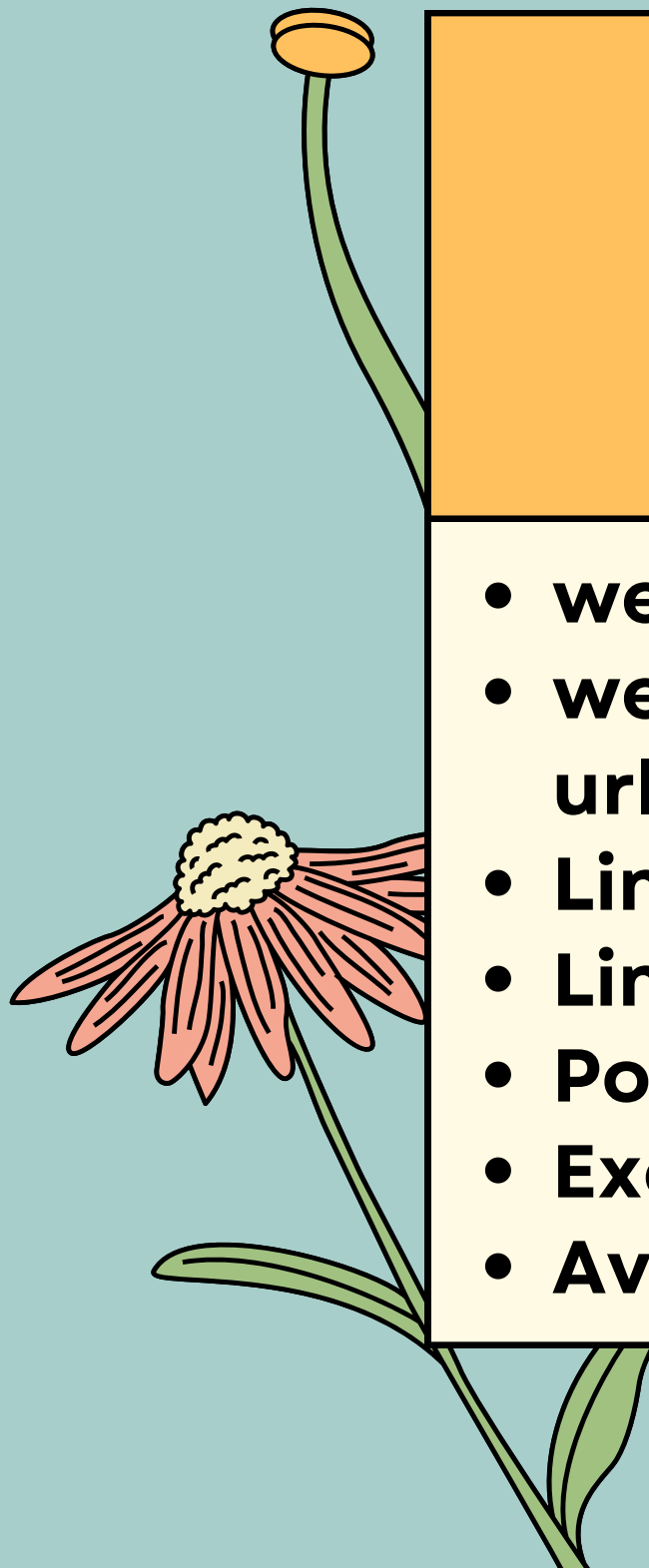
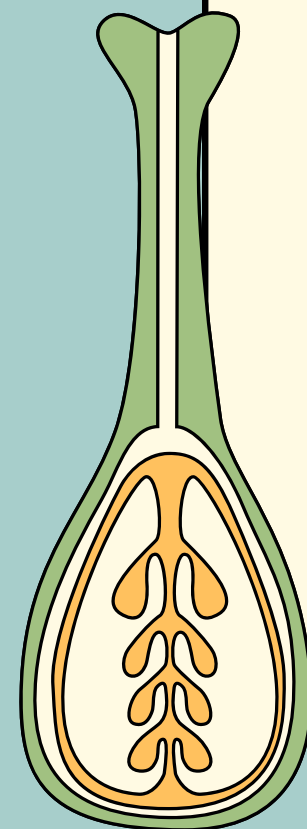
DATA PREPARATION

au

- web-scraper-order
- web-scraper-start-url
- Links
- Links-href
- Poor
- Excellent
- Average

แก้ไข

- Status
- Side_effects
- Alcohol
- Pregnancy
- Driving
- Kidney
- Liver



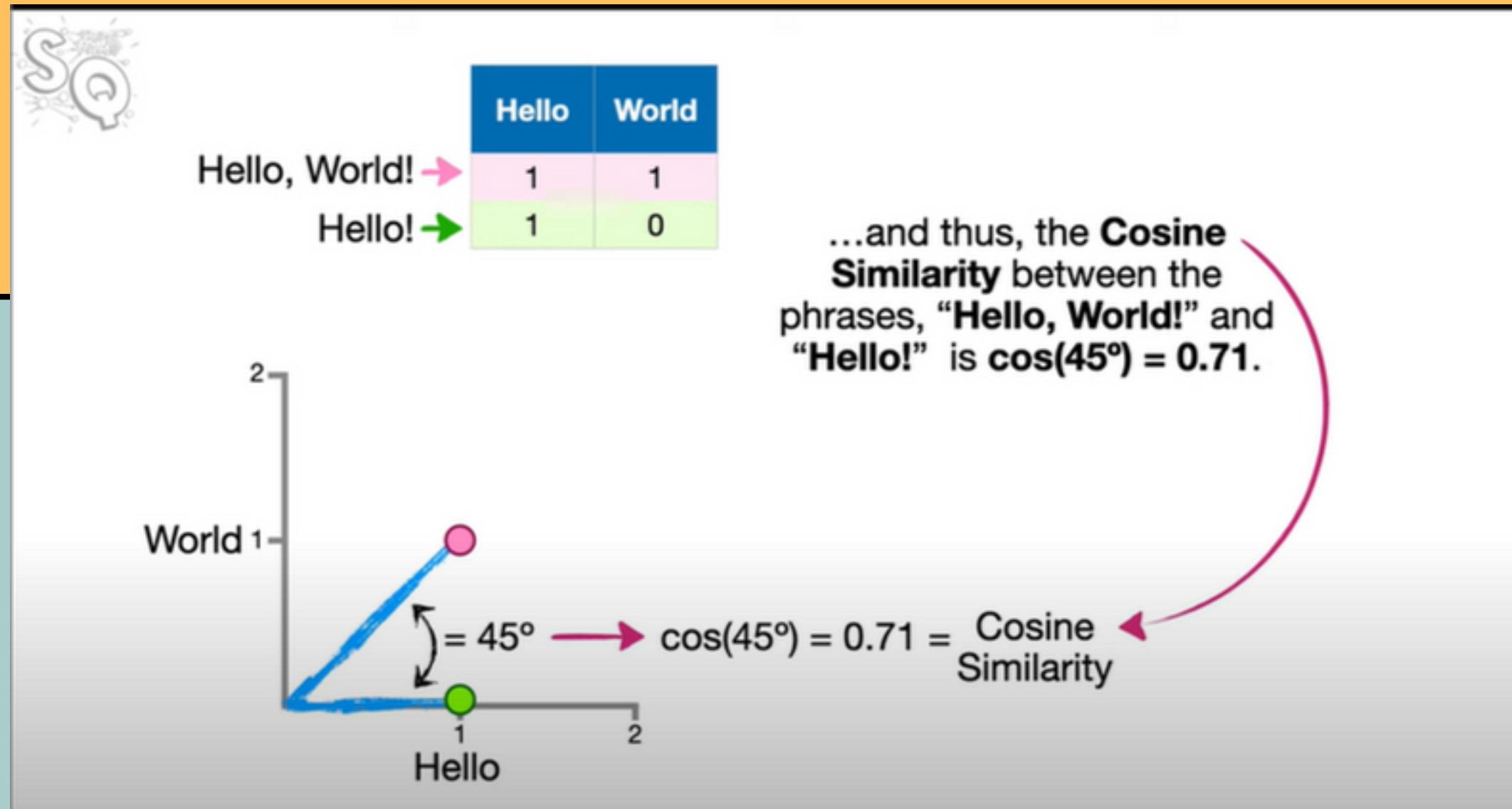
DATA PREPARATION

TF-IDF

- Use
- Composition
- side_effects
- Alcohol
- Pregnancy
- Driving
- Kidney
- Liver

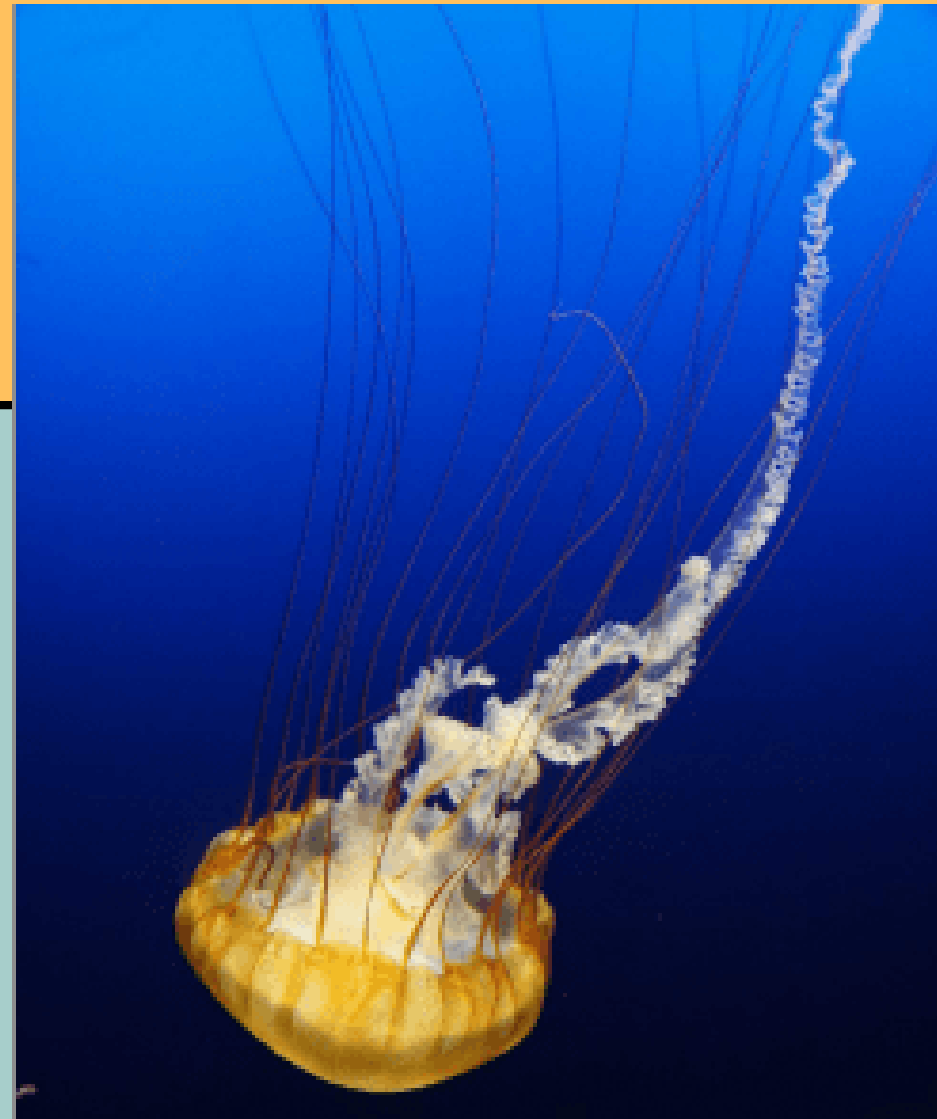
SELECTED
ATTRIBUTES

COSINE SIMILARITY

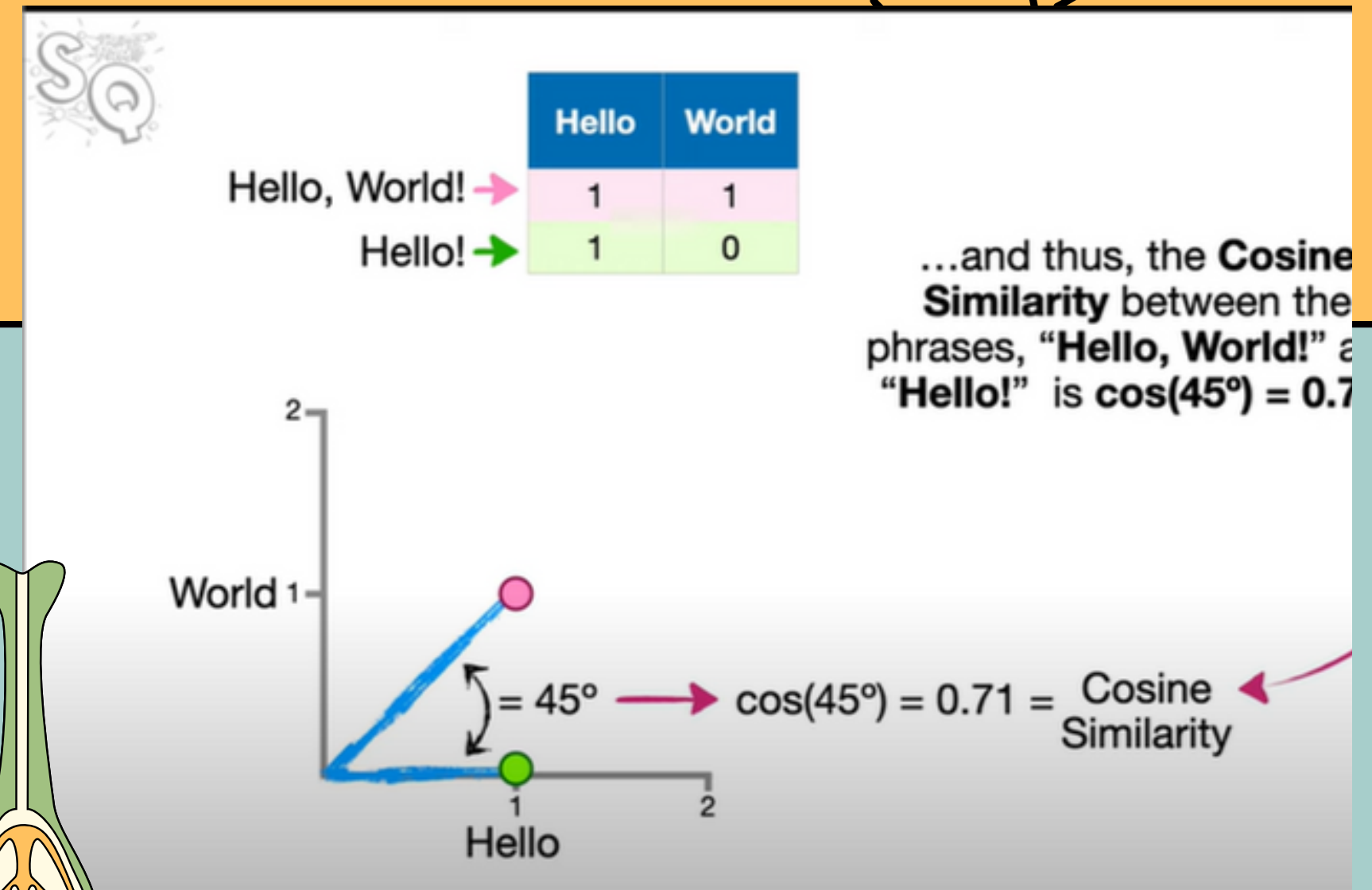
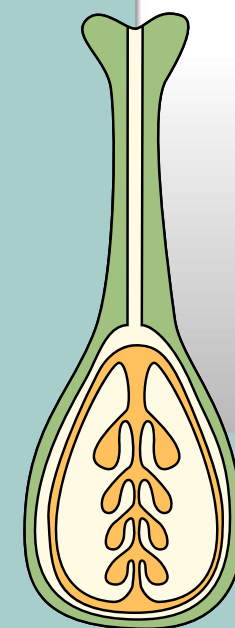
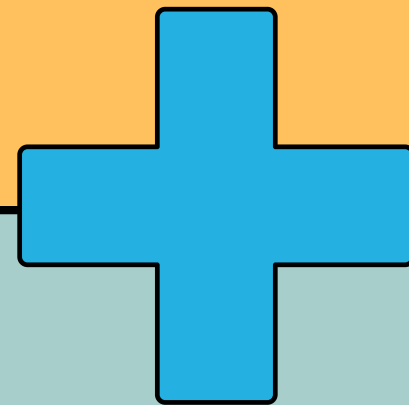


ref: <https://www.youtube.com/watch?v=e9U0QAFbfLI>

DRUG RECOMMENDATION



Jellyfish



Cosine

DRUG RECOMMENDATION

Drug Recommendation base on Details

Select kidney safety

safe x



Select liver safety

safe x



Enter price limit

1000



Enter medicine name 1

Aceloflam Plus Tablet

Enter medicine name 2

Ambrolite 2S Expectorant

Enter medicine name 3

Anti Cold Syrup

Get Recommendations for All Medicines

Input

DRUG RECOMMENDATION

Closest Match: Atropine 1% Eye Drop

Top 5 Recommended Medicines for Medicine 1:

- Medicine: Atropine 1% Eye Drop, Similarity Score: 1.0, Price: 39
- Medicine: Atropine Sulphate 1% Eye Ointment, Similarity Score: 1.0, Price: 210
- Medicine: Atropine Eye Ointment, Similarity Score: 1.0, Price: 75
- Medicine: Atroped 0.01% Eye Drop, Similarity Score: 0.55, Price: 161
- Medicine: Atrodex-C Eye Drop, Similarity Score: 0.42, Price: 145

Closest Match: Anna Ear Drop

Top 5 Recommended Medicines for Medicine 2:

- Medicine: Aqua Ear Drop, Similarity Score: 0.57, Price: 588
- Medicine: Acetik Ear Drop, Similarity Score: 0.41, Price: 150
- Medicine: Alciflox D Eye/Ear Drops, Similarity Score: 0.4, Price: 90
- Medicine: Acetik-HC Ear Drop, Similarity Score: 0.39, Price: 152
- Medicine: Atonide Cream, Similarity Score: 0.27, Price: 351

Closest Match: Azax 200 Suspension

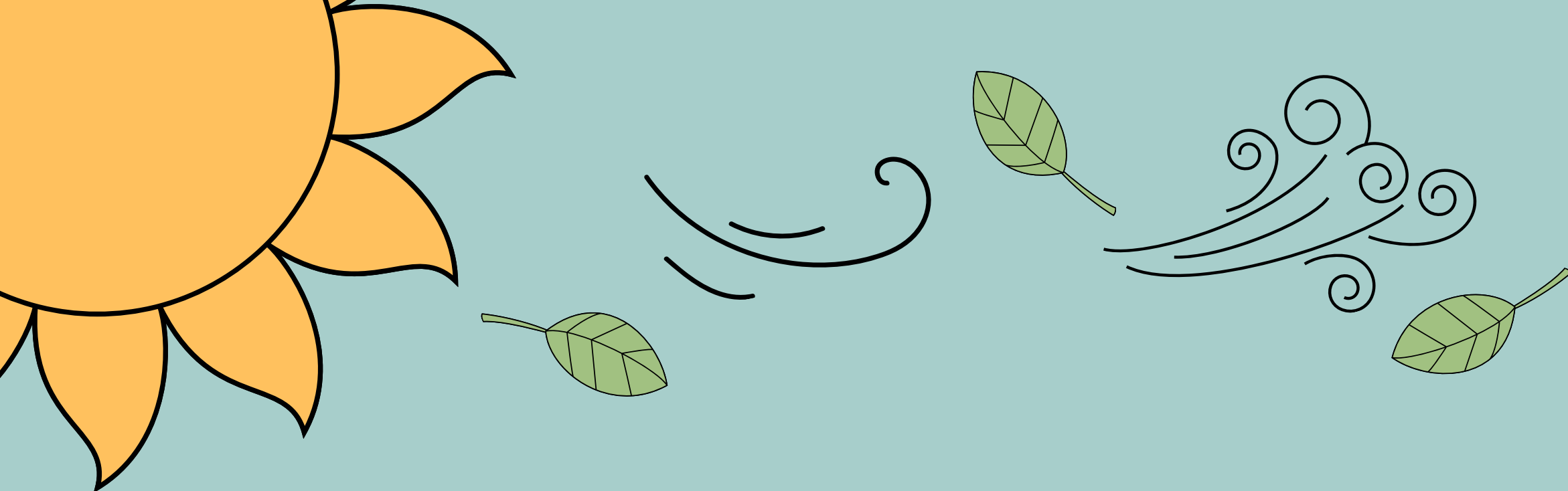
Top 5 Recommended Medicines for Medicine 3:

- Medicine: Azimax 200 Dry Syrup, Similarity Score: 1.0, Price: 53
- Medicine: Azikem 200 Suspension, Similarity Score: 1.0, Price: 30
- Medicine: Azax 200 Suspension, Similarity Score: 1.0, Price: 175
- Medicine: Azithro 200mg/5ml Suspension, Similarity Score: 1.0, Price: 28
- Medicine: Azivent-XL 200mg Rediuse Oral Suspension, Similarity Score: 1.0, Price: 137

Result

MOREOVER

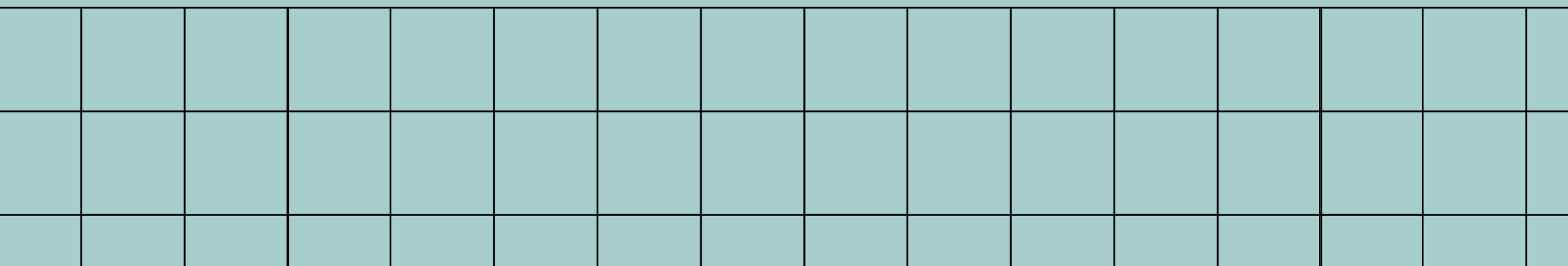




SOLUTION

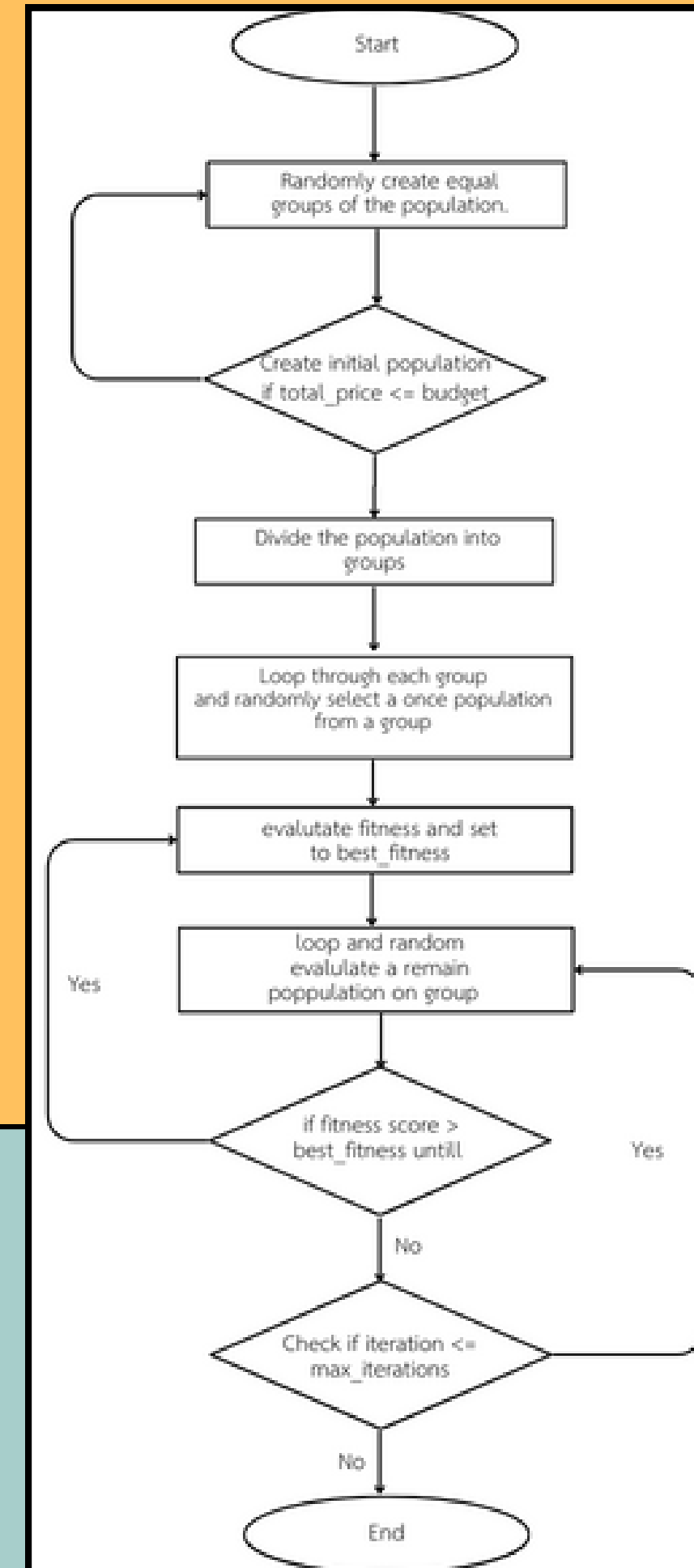
เราคิดว่ามันคงจะดีนะถ้าหากมี

ระบบที่ช่วยลดเรื่องค่าใช้จ่าย

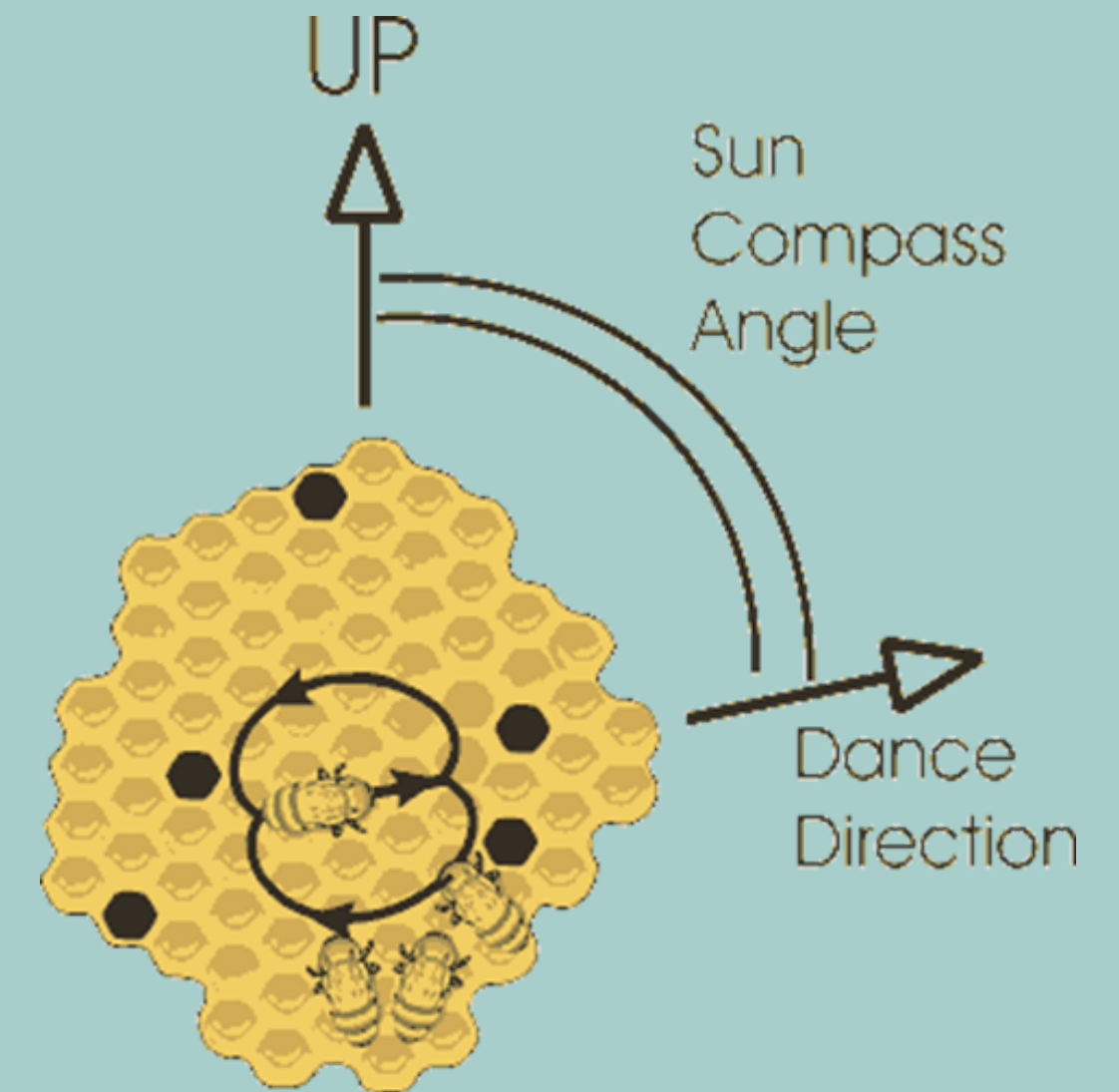
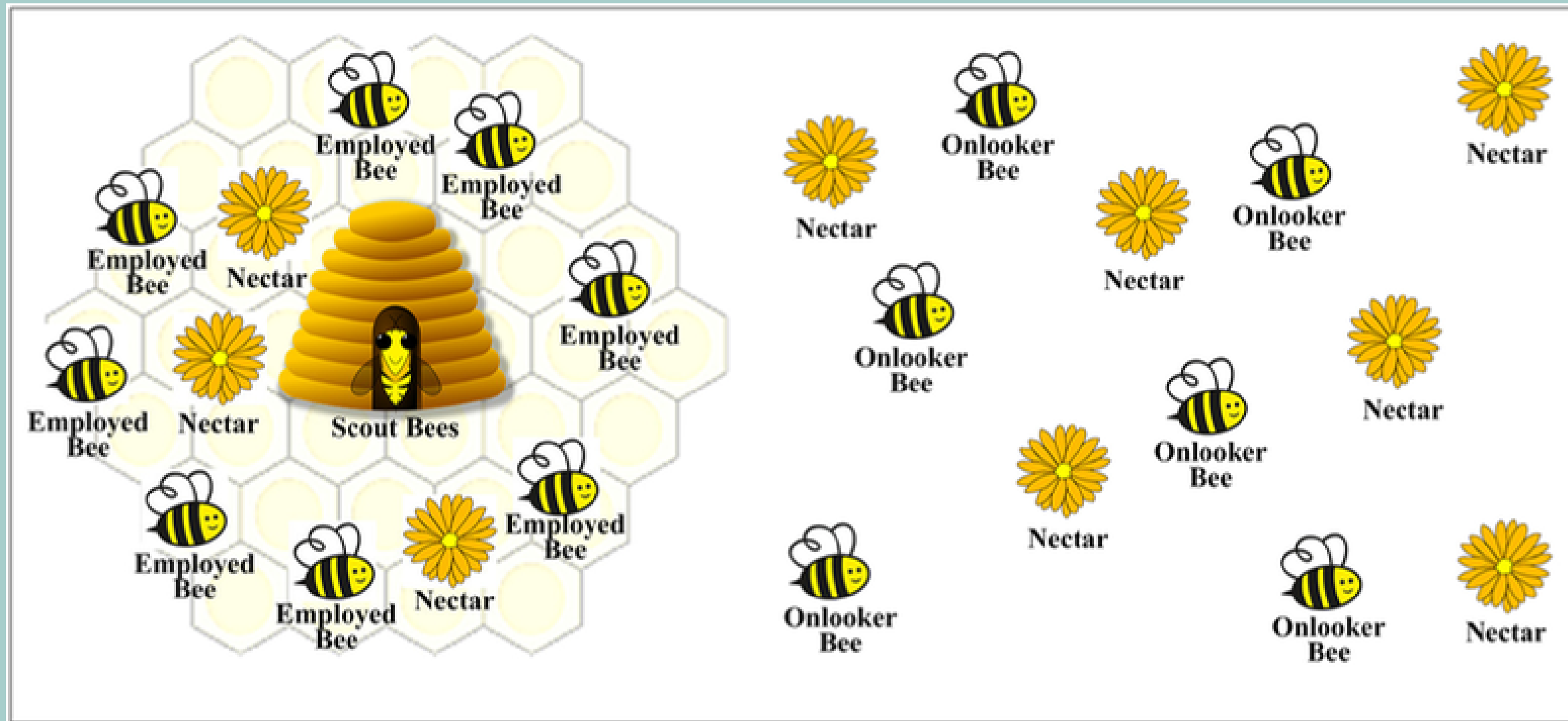


OPTIMIZATION

Drug Recommender Optimization using
Bee Algorithm



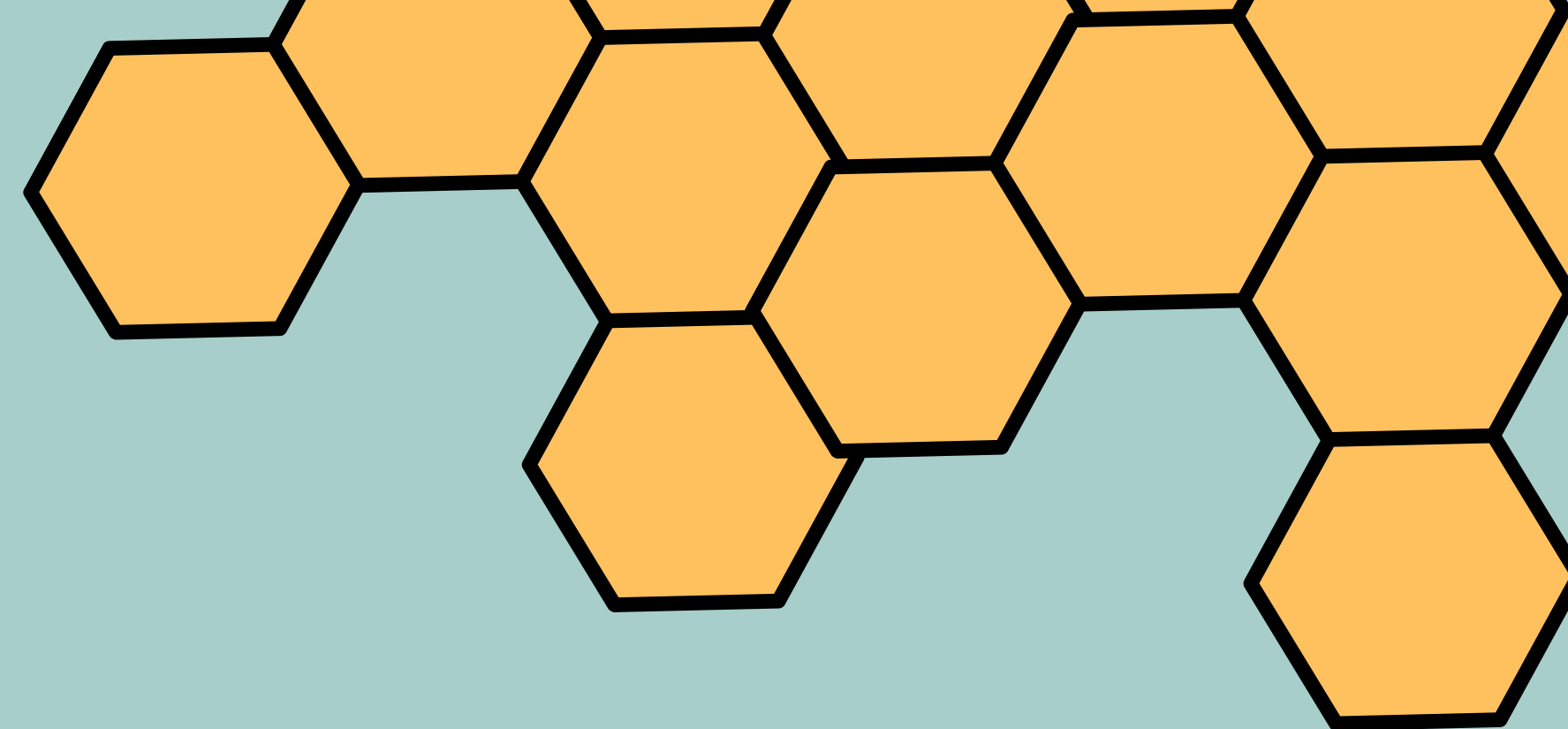
How it works?



Apply this logic on function



Optimization



Drug Recommendation base on Details using Bee Algorithm

Select kidney safety

safe ×



Select liver safety

safe ×



Enter price limit

1000



Enter medicine name 1

Abiways Tablet

Enter medicine name 2

All 9 NVP Tablet

Enter medicine name 3

Advent 228.5mg Dry Syrup Tangy Orange

Enter your budget

1000



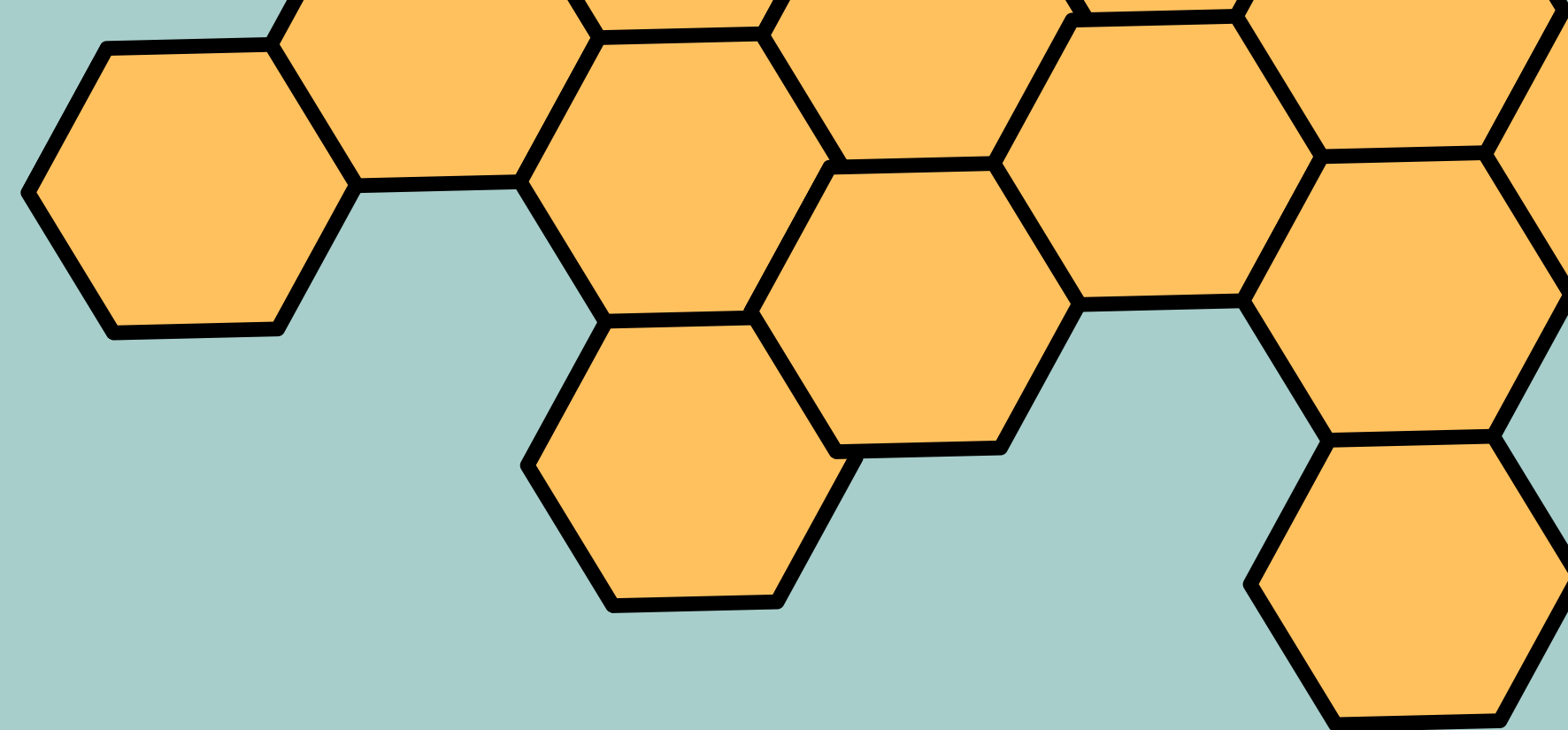
Get Recommendations

Input

Optimization

```
Iteration 1, Solution 1 Fitness: 0
Iteration 1, Solution 2 Fitness: 3.0289
Iteration 1, Solution 3 Fitness: 1.9979
Iteration 1, Solution 4 Fitness: 1.4431
Iteration 1, Solution 5 Fitness: 0
Iteration 1, Solution 6 Fitness: 1.0479
Iteration 1, Solution 7 Fitness: 0.8612
Iteration 1, Solution 8 Fitness: 0.9653
Iteration 1, Solution 9 Fitness: 0.9653
Iteration 1, Solution 10 Fitness: 1.5072
Iteration 1, Solution 11 Fitness: 1.9266
Iteration 1, Solution 12 Fitness: 5.3152
Iteration 1, Solution 13 Fitness: 2.1813
Iteration 1, Solution 14 Fitness: 3.0999
Iteration 1, Solution 15 Fitness: 2.3643
Iteration 1, Solution 16 Fitness: 2.6523
Iteration 1, Solution 17 Fitness: 10.9711
Iteration 1, Solution 18 Fitness: 1.0084
Iteration 1, Solution 19 Fitness: 4.6173
Iteration 1, Solution 20 Fitness: 1.2113
Iteration 1, Solution 21 Fitness: 1.9208
Iteration 1, Solution 22 Fitness: 1.0285
Iteration 1, Solution 23 Fitness: 1.9208
Iteration 1, Solution 24 Fitness: 8.9109
Iteration 1, Solution 25 Fitness: 0.9522
Iteration 1, Solution 26 Fitness: 3.3824
Iteration 1, Solution 27 Fitness: 1.7514
Iteration 1, Solution 28 Fitness: 1.7684
Iteration 1, Solution 29 Fitness: 2.3618
Iteration 1, Solution 30 Fitness: 2.5545
```

Fitness Score



Optimization

Get Recommendations

Closest Match: Abiways-M Tablet SR

Closest Match: Alzil 10 Tablet

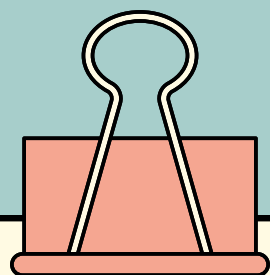
Closest Match: Advent 228.5mg Dry Syrup

Medicine: Ascovent -SR Tablet, Score: 0.58, Price: 37

Medicine: Alzil-M 10 Tablet, Score: 0.78, Price: 86

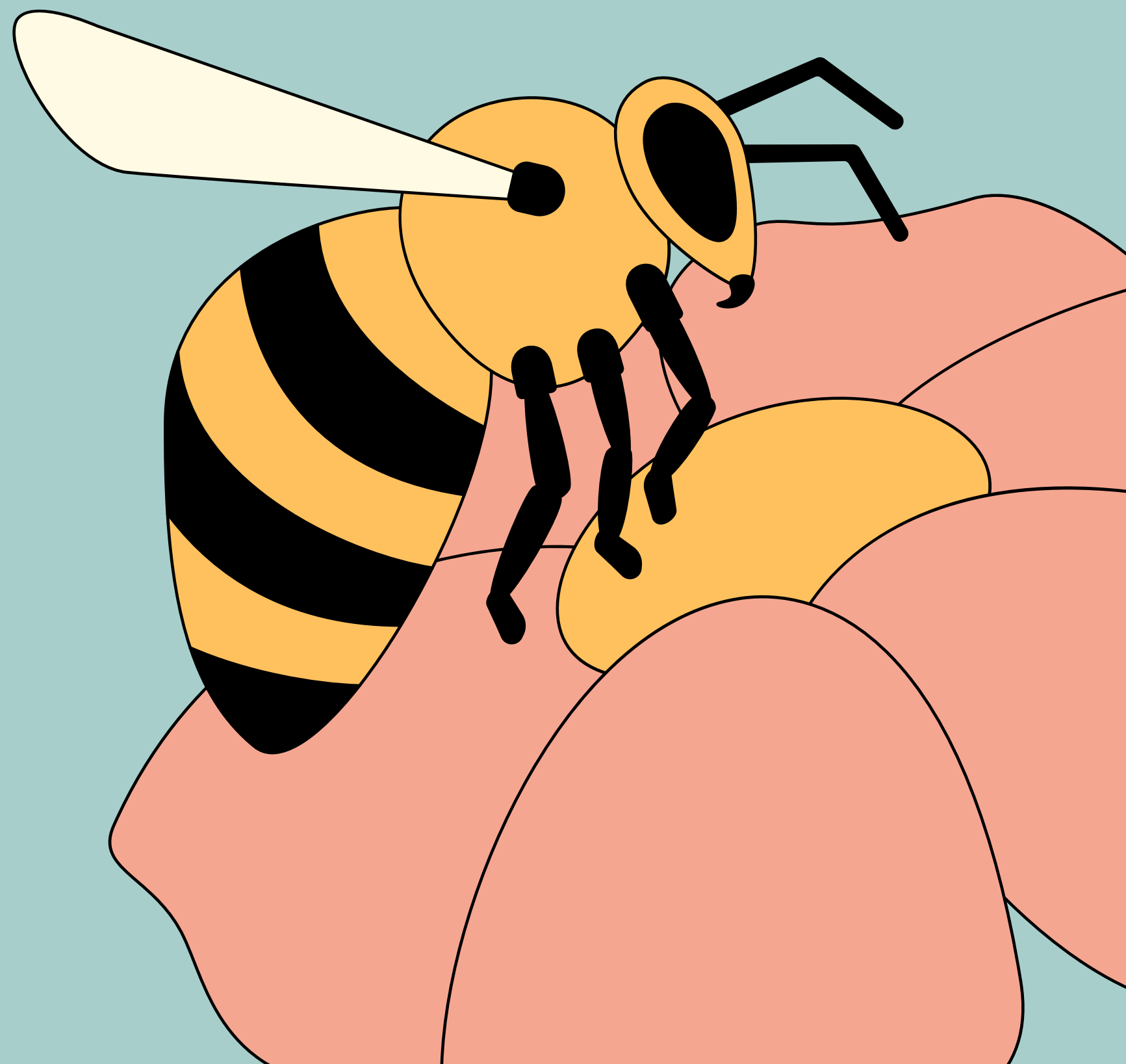
Medicine: Almox CV Syrup, Score: 0.84, Price: 56

Results



SUMMARY

จากผลลัพธ์ทั้งหมดสรุปได้ว่าทางเราได้ทำระบบ
แนะนำยาที่สามารถ Optimize ราคาขายได้ แต่
เนื่องด้วยข้อจำกัดบางอย่างงานนี้ยังคงต้อง
พัฒนาอีกมาก



Demo

THANK YOU

Drug Recommendation base on Details

Select kidney safety

safe x

Select liver safety

safe x

Enter price limit

1000 - +

Enter medicine name 1

Aceloflam Plus Tablet

Enter medicine name 2

Ambrolite 2S Expectorant

Enter medicine name 3

Anti Cold Syrup

Get Recommendations for All Medicines

Drug Recommendation base on Details using Bee Algorithm

Select kidney safety

safe x

Select liver safety

safe x

Enter price limit

1000 - +

Enter medicine name 1

Abiways Tablet

Enter medicine name 2

All 9 NVP Tablet

Enter medicine name 3

Advent 228.5mg Dry Syrup Tangy Orange

Enter your budget

1000 - +

Get Recommendations

Drug Recommendation base on Details

Enter medicine details below:

Enter medicine name

Select kidney safety

Choose an option

Select liver safety

Choose an option

Enter price limit

1000

Get Recommendations