Pattern Recognition

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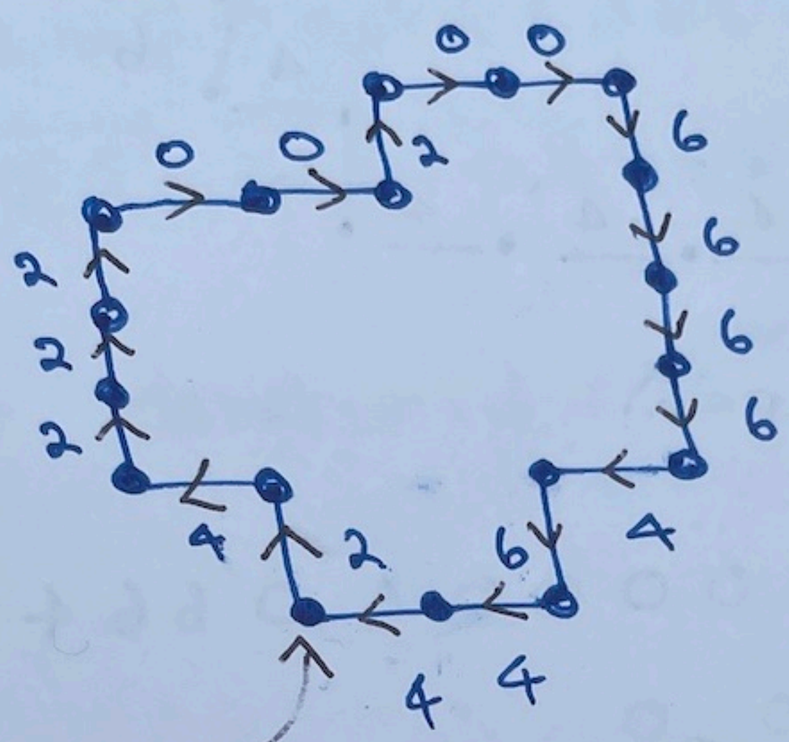
1.1)



Starting Point

& we follow Anti Clock wise direction

2 4 2 2 2 0 6 2 0 0 6 6 6 4 6 4 4

1.2) • Normalization of Starting Point

Tread the code as Circular sequence and redefine the Starting point that the resulting sequence of numbers forms a subspace of minimum magnitude an integer of minimum magnitude

• Normalization for Rotation

use the first difference of the chain code instead of the code itself.

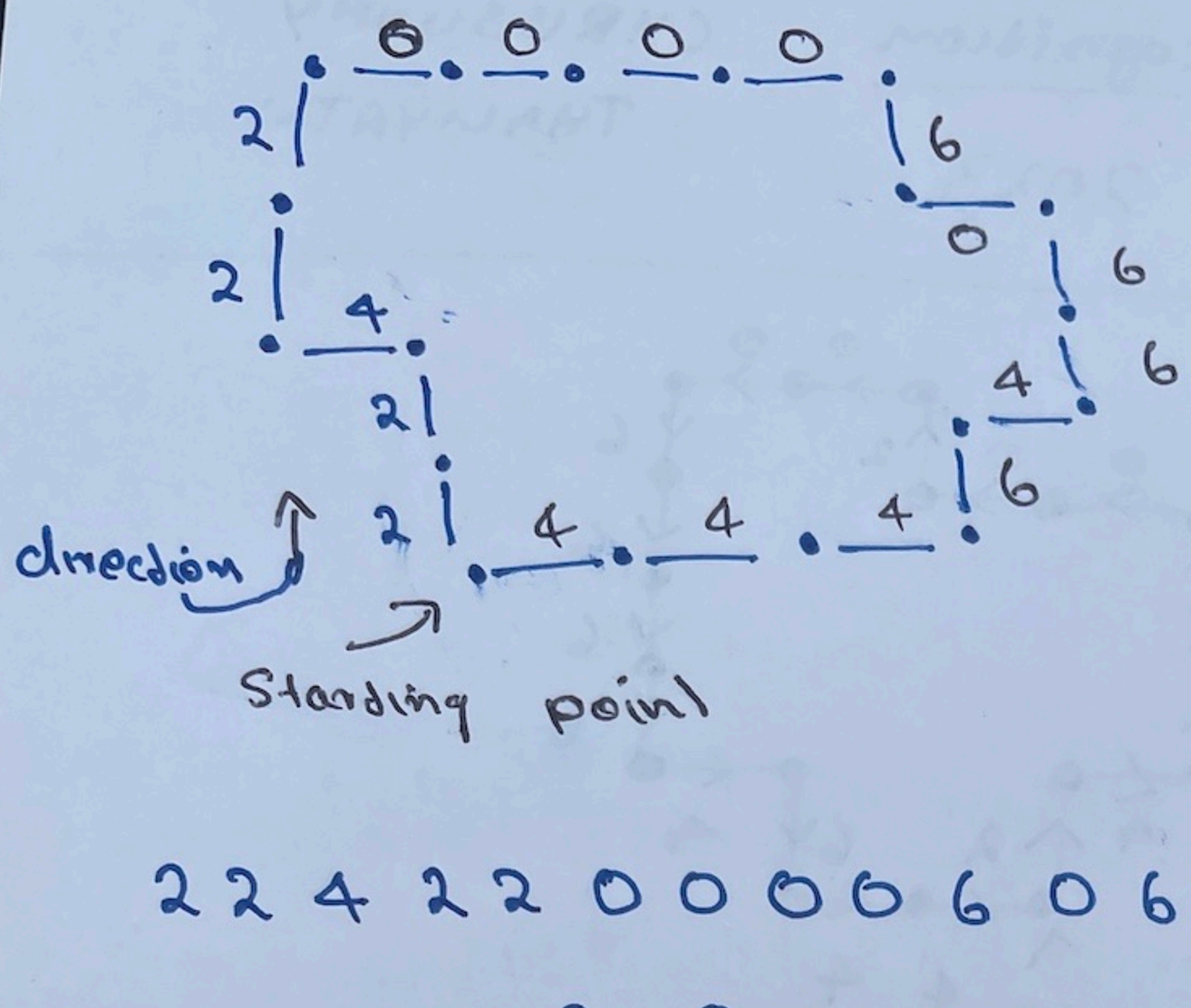
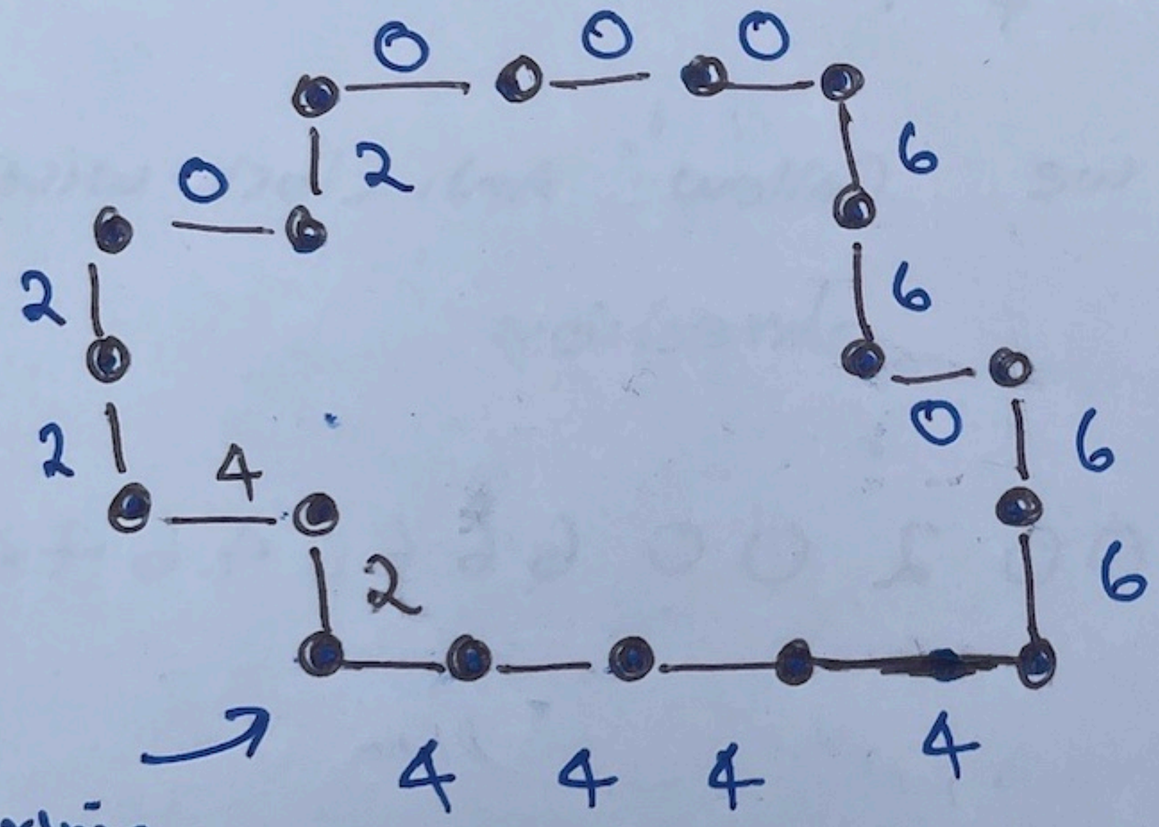


figure (B)

2 2 4 2 2 0 0 0 0 6 0 6 6 4 6 4 4 4



Figure(C)

2 4 2 2 0 2 0 0 0 6 6 0 6 6 4 4 4

description of figure (B) & figure (C) respectively

A: 22 4 22000060664644 4

B: 24 2 20200066064444

0260260000560 6000

2

↑ Normalized description

1.3) Now, all these figures dont get the same descripton irrespective of starting point

we have to
→ Normalize the starting point
→ Normalize the rotation

They dont have the same descripton because starting points are different

2.1

We have n classes

$C_1, C_2, C_3 \ldots\ldots C_n$

feature vector a

Bayes Rule

~~$P(x|x) = P(x) \times P(B|A)$~~

Bayes Rule

$$P(A|B) = \frac{P(A) \times P(B|A)}{P(B)}$$

Prior

Likelihood

Marginalization

Probability that A will happen given B has happened

WRT Question where a, feature vector for C_1 class

$$P(a|c_1, c_2, c_3 \ldots\ldots c_n) = \frac{P(c_1, \ldots\ldots c_n|a)\, P(a)}{P(c_1, c_2, \ldots\ldots c_n)}$$

$P(a|\vec{c})$ gives the **Class - Conditional Probability density** of vector a on class C. It is the likelihood of class C averaging the observation a.

2.2 >

	A	B
x	248	167
y	82	503

given → $P(A) = .33 \Rightarrow P(B) = 1 - P(A)$

$= .67$

Posterior

~~$P(A|x) = P(B|A) P($~~

$$P(c|x) = \frac{P(x|c)\ P(c)}{P(x)}$$

likelihood; Class prior probab

Posterior