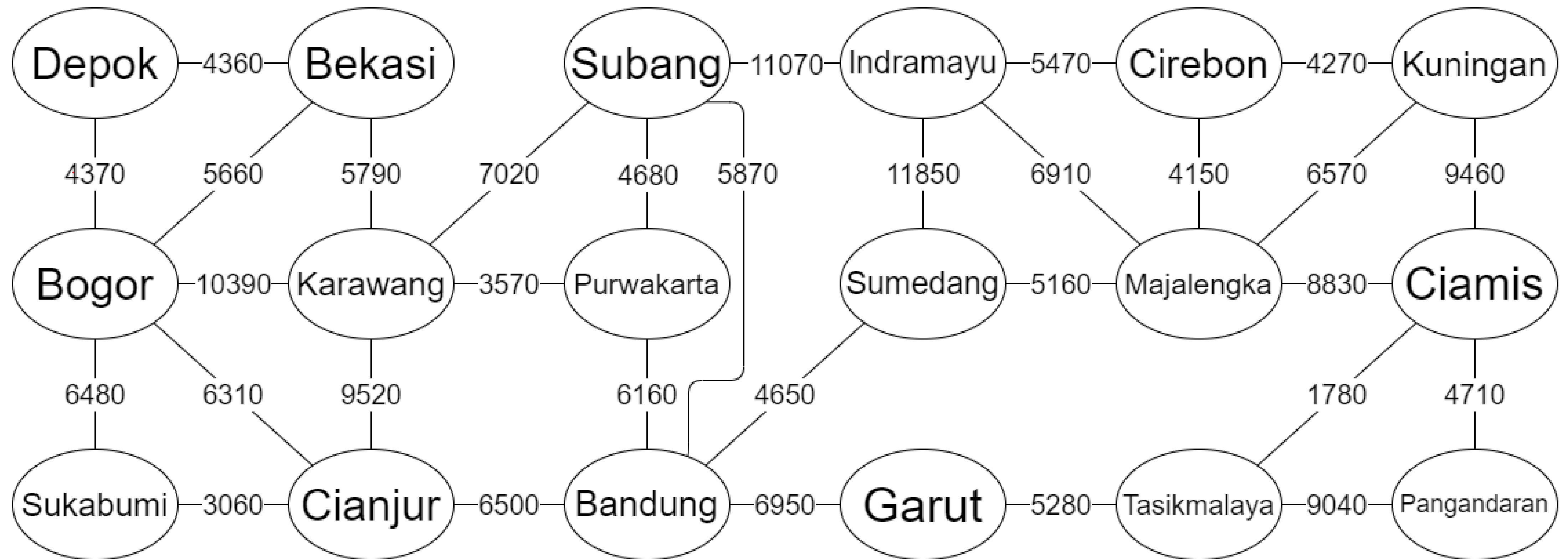


Latihan 6

Teori Graf dan *Tree*.

Eunike Kristianti / 18320019

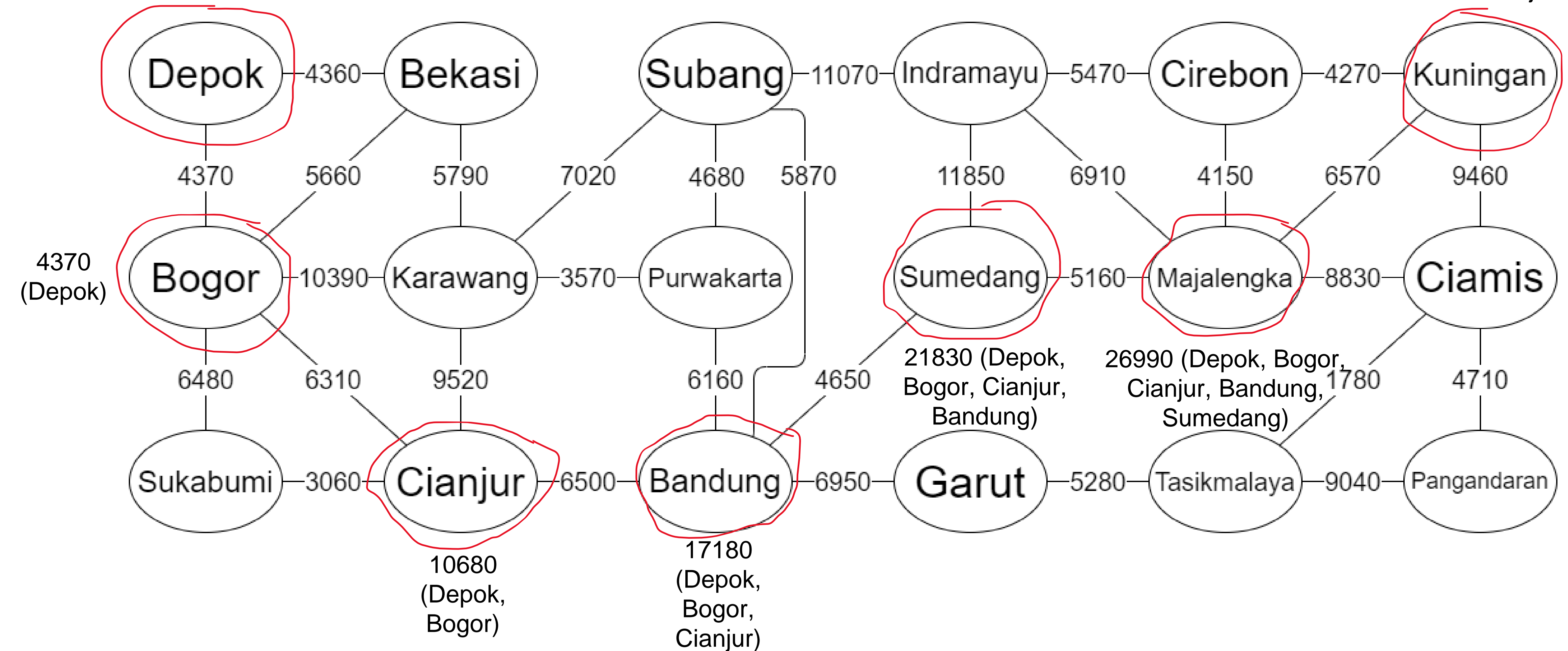
1. Dengan algorithm Dijkstra, bandingkan jarak yang perlu ditempuh seseorang dari depok ke kuningan, dan dari subang ke pangandaran, sertakan pula pseudocodenya.



Data from google map

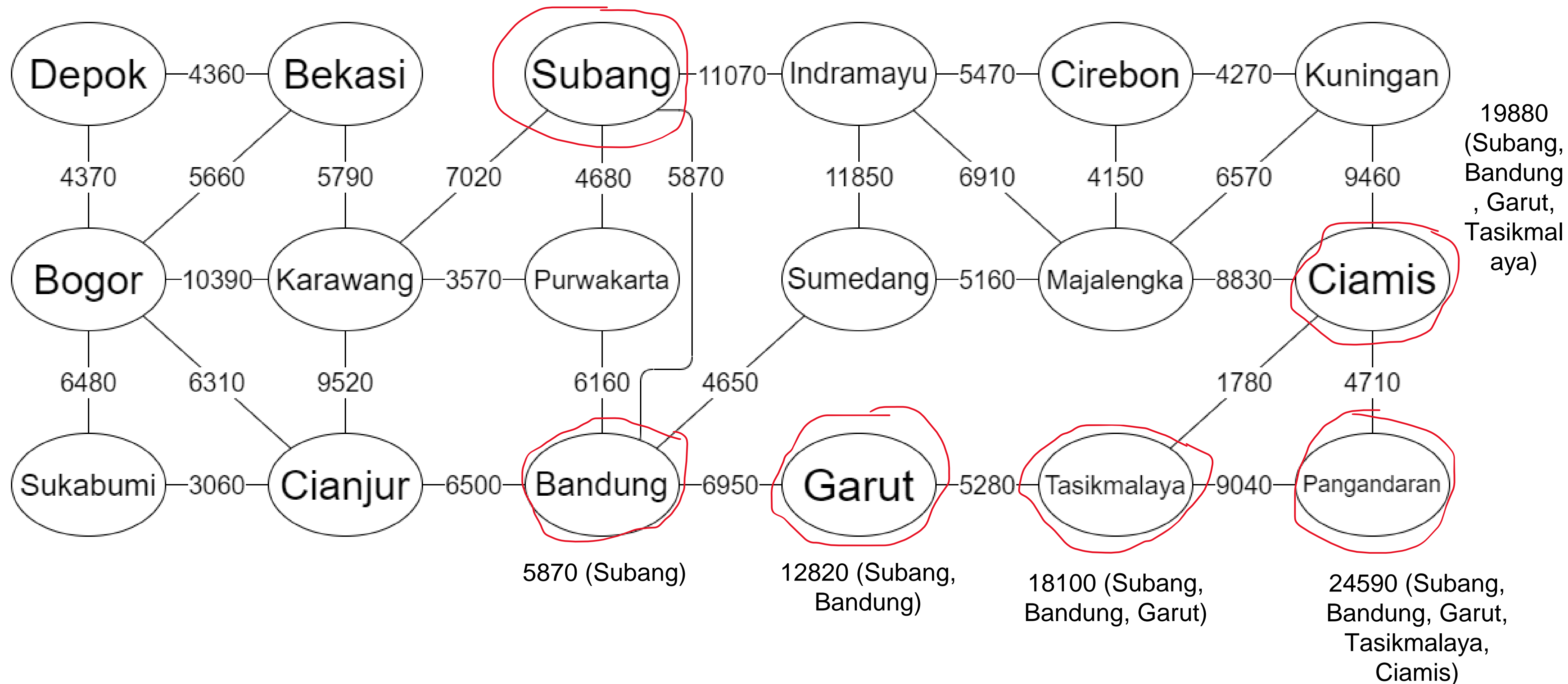
$$\text{Jarak terdekat} = 4370 + 6310 + 6500 + 4650 + 5160 + 6570 = 33560$$

33560 (Depok,
Bogor, Cianjur,
Bandung,
Sumedang,
Majalengka)



Subang ke Pangandaran

$$\text{Jarak terdekat} = 5870 + 6950 + 5280 + 1780 + 4710 = 24590$$



2. Pesan yang diencode dengan bantuan tabel dibawah dirasa kurang efisien, dengan Teknik Huffman code susunlah Kembali pesan yang harus dikirim (sertakan Huffman tree nya,) tentukan pula *average bit length* nya!

10010 00100 01100 10100 00000 01111 00000
10010 10010 10110 01110 10001 00011 01011
10100 01010 01100 00000 01101 10011 00100
10001 00011 01000 10001 01000 00011 00000
10001 01000 10011 00100 01100 01111 00000
10011 00011 00000 01101 10011 00000 01101
00110 00110 00000 01011 01011 00000 00111
01000 10001 01101 11000 00000

| huruf | kode | huruf | kode |
|-------|-------|-------|-------|
| a | 00000 | n | 01101 |
| b | 00001 | o | 01110 |
| c | 00010 | p | 01111 |
| d | 00011 | q | 10000 |
| e | 00100 | r | 10001 |
| f | 00101 | s | 10010 |
| g | 00110 | t | 10011 |
| h | 00111 | u | 10100 |
| i | 01000 | v | 10101 |
| j | 01001 | w | 10110 |
| k | 01010 | x | 10111 |
| l | 01011 | y | 11000 |
| m | 01100 | z | 11001 |

10010 00100 01100 10100 00000 01111 00000
s e m u a p a

10010 10010 10110 01110 10001 00011 01011
s s w o r d l

10100 01010 01100 00000 01101 10011 00100
u k m a n t e

10001 00011 01000 10001 01000 00011 00000
r d i r i d a

10001 01000 10011 00100 01100 01111 00000
r i t e m p a

10011 00011 00000 01101 10011 00000 01101
t d a n t a n

00110 00110 00000 01011 01011 00000 00111
g g a l l a h

01000 10001 01101 11000 00000
i r n y a

| huruf | kode | huruf | kode |
|-------|-------|-------|-------|
| a | 00000 | n | 01101 |
| b | 00001 | o | 01110 |
| c | 00010 | p | 01111 |
| d | 00011 | q | 10000 |
| e | 00100 | r | 10001 |
| f | 00101 | s | 10010 |
| g | 00110 | t | 10011 |
| h | 00111 | u | 10100 |
| i | 01000 | v | 10101 |
| j | 01001 | w | 10110 |
| k | 01010 | x | 10111 |
| l | 01011 | y | 11000 |
| m | 01100 | z | 11001 |

10010 00100 01100 10100 00000 01111 00000
s e m u a p a

10010 10010 10110 01110 10001 00011 01011
s s w o r d l

10100 01010 01100 00000 01101 10011 00100
u k m a n t e

10001 00011 01000 10001 01000 00011 00000
r d i r i d a

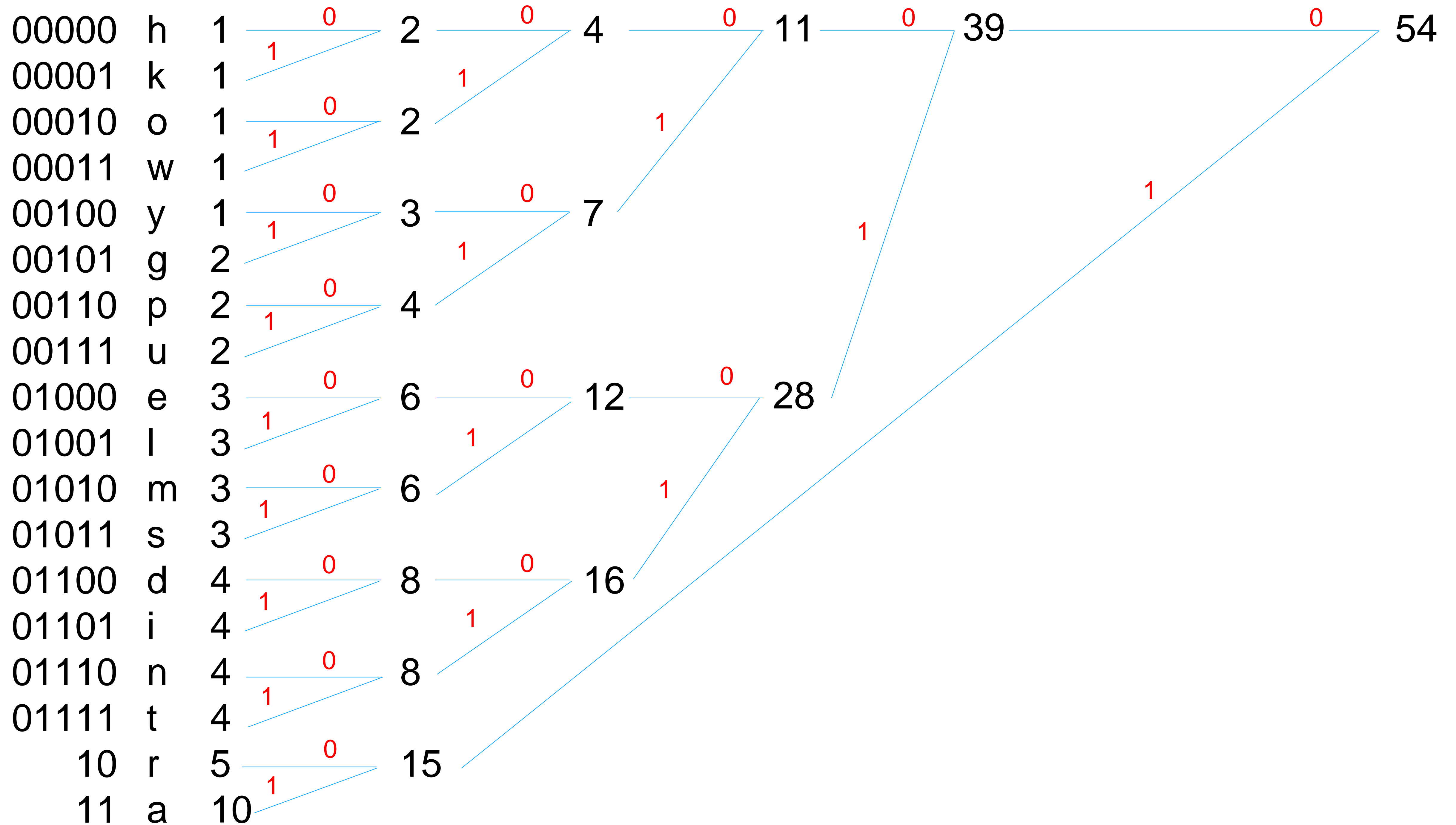
10001 01000 10011 00100 01100 01111 00000
r i t e m p a

10011 00011 00000 01101 10011 00000 01101
t d a n t a n

00110 00110 00000 01011 01011 00000 00111
g g a l l a h

01000 10001 01101 11000 00000
i r n y a

| Symbol | Frequency | Probability |
|--------|-----------|-------------|
| a | 10 | 0.18 |
| d | 4 | 0.08 |
| e | 3 | 0.05 |
| g | 2 | 0.04 |
| h | 1 | 0.02 |
| l | 4 | 0.08 |
| k | 1 | 0.02 |
| L | 3 | 0.05 |
| m | 3 | 0.05 |
| n | 4 | 0.08 |
| o | 1 | 0.02 |
| p | 2 | 0.04 |
| r | 5 | 0.09 |
| s | 3 | 0.05 |
| t | 4 | 0.08 |
| u | 2 | 0.04 |
| w | 1 | 0.02 |
| y | 1 | 0.02 |
| Total | 54 | 1.01 |



| | | |
|-------|---|----------------------------------------|
| 00000 | h | |
| 00001 | k | 01011 01000 01010 00111 11 00110 11 |
| 00010 | o | s e m u a p a |
| 00011 | w | 01011 01011 00011 00010 10 01100 01001 |
| 00100 | y | s s w o r d l |
| 00101 | g | 00111 00001 01010 11 01110 01111 01000 |
| 00110 | p | u k m a n t e |
| 00111 | u | 10 01100 01101 10 01101 01100 11 |
| 01000 | e | r d i r i d a |
| 01001 | l | 10 01101 01111 01000 01010 00110 11 |
| 01010 | m | r i t e m p a |
| 01011 | s | 01111 01100 11 01110 01111 11 01110 |
| 01100 | d | t d a n t a n |
| 01101 | i | 00101 00101 11 01001 01001 11 00000 |
| 01110 | n | g g a l l a h |
| 01111 | t | 01101 10 01110 00100 11 |
| 10 | r | i r n y a |
| 11 | a | |

| | |
|-------|---|
| 00000 | h |
| 00001 | k |
| 00010 | o |
| 00011 | w |
| 00100 | y |
| 00101 | g |
| 00110 | p |
| 00111 | u |
| 01000 | e |
| 01001 | l |
| 01010 | m |
| 01011 | s |
| 01100 | d |
| 01101 | i |
| 01110 | n |
| 01111 | t |
| 10 | r |
| 11 | a |

| | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| 01011 | 01000 | 01010 | 00111 | 11 | 00110 | 11 |
| 01011 | 01011 | 00011 | 00010 | 10 | 01100 | 01001 |
| 00111 | 00001 | 01010 | 11 | 01110 | 01111 | 01000 |
| 10 | 01100 | 01101 | 10 | 01101 | 01100 | 11 |
| 10 | 01101 | 01111 | 01000 | 01010 | 00110 | 11 |
| 01111 | 01100 | 11 | 01110 | 01111 | 11 | 01110 |
| 00101 | 00101 | 11 | 01001 | 01001 | 11 | 00000 |
| 01101 | 10 | 01110 | 00100 | 11 | | |