

20120356 - Lê Minh Quân

Cấu trúc dữ liệu và giải thuật - 10/12/2021

(Câu 1) MSSV: 20120356 $\rightarrow x = 653$

$m = 13$

$f(k) = k \bmod m$

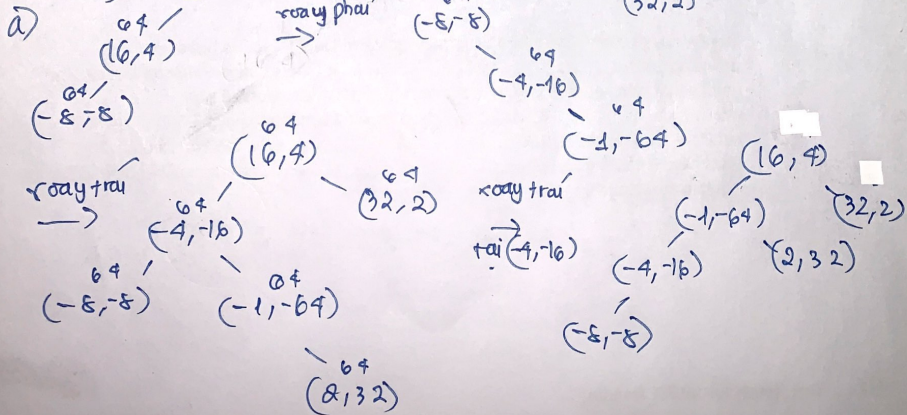
$x = 653, x+5 = 658, 2x = 1306$

$0,5x = 326, x-8 = 645, 12x = 7836$

$1170 - x = 517, \log_{10}(x) = 2$

	Dãy tuyến tính	Dãy bậc 2	Bình phương
0			517
1	326	326	326
2	2	2	2
3	653	653	653
4			
5			
6	1306	1306	1306
7			
8	658	658	658
9	645	645	645
10	7836	7836	7836
11	517	517	
12			

(Câu 2) $(32, 2)$



②

$(-8, 8)$

→

```
graph TD
    A["(-1, -64)"] --> B["(-4, -16)"]
    A --> C["(16, 4)"]
    B --> D["(-8, -4)"]
    C --> E["(2, 32)"]
    C --> F["(32, 2)"]
    E --> G["(8, 8)"]
    G --> H["(4, 16)"]
```

xoay phải tại $(8, 8)$

```
graph TD
    I["(-1, -64)"] --> J["(-4, -16)"]
    I --> K["(16, 4)"]
    J --> L["(8, 8)"]
    K --> M["(2, 32)"]
    K --> N["(32, 2)"]
    L --> O["(4, 16)"]
```

root
 →
 left (2, 32)
 right (-1, -64)
 left (-4, -16)
 right (16, 4)
 left (8, 8)
 right (32, 2)
 left (4, 16)
 right (64, 1)
 left (8, 8)
 right (64, 2)

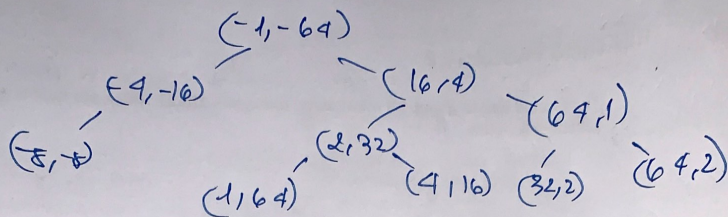
Diagram illustrating the Huffman tree construction for the given frequencies:

```
graph TD; A["(64, 2)"] --- B["(32, 2)"]; A --- C["(64, 1)"]; B --- D["(16, 4)"]; B --- E["(8, 8)"]; C --- F["(4, 16)"]; C --- G["(8, 8)"]; D --- H["(2, 32)"]; D --- I["(2, 32)"]; F --- J["(-4, -16)"]; F --- K["(-1, -64)"]; H --- L["(1, 64)"]; I --- M["(-8, -8)"];
```

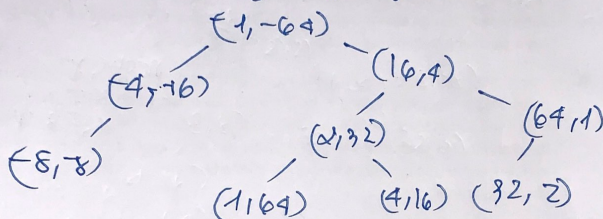
The tree structure shows the following nodes and their children:

- Root: (64, 2)
 - Left child: (32, 2)
 - Left child: (16, 4)
 - Left child: (2, 32)
 - Left child: (1, 64)
 - Right child: (2, 32)
 - Left child: (-8, -8)
 - Right child: (8, 8)
 - Right child: (64, 1)
 - Left child: (4, 16)
 - Left child: (-4, -16)
 - Right child: (-1, -64)

Scanned with CamScanner



~~Xóa~~ xóa (64, 2) không có gì xảy ra, cân vẫn cân bằng



Câu 3)

(C) do node 2 có 3 con

~~(B) do các node là nút tồn tại phải cùng mức~~