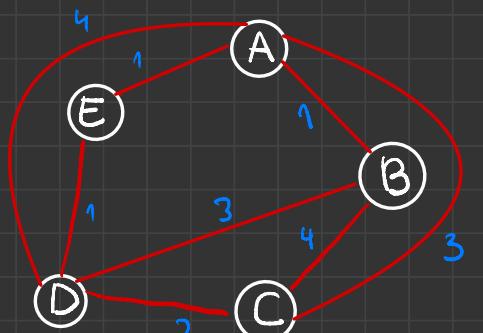


GRAFURI

NEORIENTATE



LA:

- A: $\{(B,1), (C,3), (D,4), (E,1)\}$
- B: $\{(A,1), (C,4), (D,3)\}$
- C: $\{(A,5), (B,4), (D,2)\}$
- D: $\{(A,4), (B,3), (C,2), (E,1)\}$
- E: $\{(A,1), (D,1)\}$

DFT - A

A	B	C	D	E
* ₀	* ₁	* ₂	* ₃	* ₄

A - B - C - D - E

DFT - D

A	B	C	D	E
* ₁	* ₂	* ₃	* ₀	

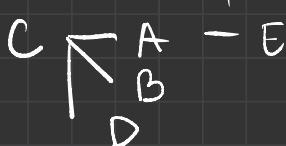
D - A - B - C
E

DFT - C

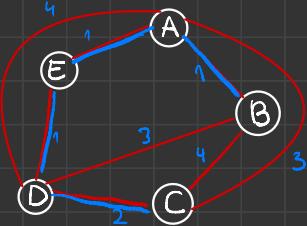
A	B	C	D	E
* ₁	* ₂	* ₀	* ₃	* ₄

C - A - B - D - E

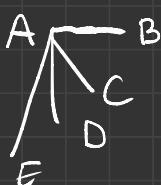
BFT - C



A	B	C	D	E
*	*	*	*	*



BFT - A



A	B	C	D	E
*	*	*	*	*

- A: $\{(B, 1), (C, 3), (D, 4), (E, 1)\}$
 B: $\{(A, 1), (C, 4), (D, 3)\}$
 C: $\{(A, 5), (B, 4), (D, 2)\}$
 D: $\{(A, 4), (B, 3), (C, 2), (E, 1)\}$
 E: $\{(A, 1), (D, 1)\}$

KJSKRAL

A - B	A - E	D - E	D - C	D - B	C - A	B - C	A - D
1	1	1	2	3	3	4	4

$$A - B : 1$$

$$A - E : 1$$

$$E - D : 1$$

$$D - C : 2$$

$$\underline{\text{CT} : 5}$$

PRIM - A

A	B	C	D	E
*	*	*	*	ok

Q: $\{(B, 1), (C, 3), (D, 4), (E, 1)\}$ A - B : 1
 Q: $\{(C, 3), (D, 3), (E, 1)\}$ A - E : 1

$$\begin{array}{l}
 Q: \left\{ (C_13), (\underline{D_11}) \right\} \quad E: D \rightarrow 1 \\
 Q: \left\{ (C_12) \right\} \quad D - C : 2 \\
 \hline
 CT = 5
 \end{array}$$

PRIM-C

$$\begin{array}{ccccc}
 A & B & C & D & E \\
 * & * & * & * & *
 \end{array}$$

$$\begin{array}{l}
 A: \{(B_11), (C_13), (D_14), (E_11)\} \\
 B: \{(A_11), (C_14), (D_13)\} \\
 C: \{(A_13), (B_14), (D_12)\} \\
 D: \{(A_14), (B_13), (C_12), (E_14)\} \\
 E: \{(A_11), (D_11)\}
 \end{array}$$

$$Q: \left\{ (A_13), (B_14), (\underline{D_12}) \right\} \quad C - D : 2$$

$$Q: \left\{ (A_13), (B_13), (\underline{E_11}) \right\} \quad D - E : 1$$

$$Q: \left\{ (\underline{A_11}), (B_13) \right\} \quad E - A : 1$$

$$Q: \left\{ (\underline{B_11}) \right\} \quad \frac{A - B : 1}{CT = 5}$$

PRIM-B

$$\begin{array}{ccccc}
 A & B & C & D & E \\
 * & * & \times & \times & *
 \end{array}$$

$$Q: \left\{ (\underline{A_11}), (C_14), (D_13) \right\} \quad B - A : 1$$

$$Q: \left\{ (C_13), (D_13), (\underline{E_11}) \right\} \quad A - E : 1$$

$$Q: \left\{ (C_13), (\underline{D_11}) \right\} \quad E - D : 1$$

$$Q: \left\{ (\underline{C_12}) \right\} \quad \frac{D - C : 2}{CT = 5}$$

PRIM - D

A	B	C	D	E
*	*	*	*	*

$$Q: \{(A, 4), (B, 3), (C, 2), (\underline{E}, 1)\} \quad D-E : 1$$

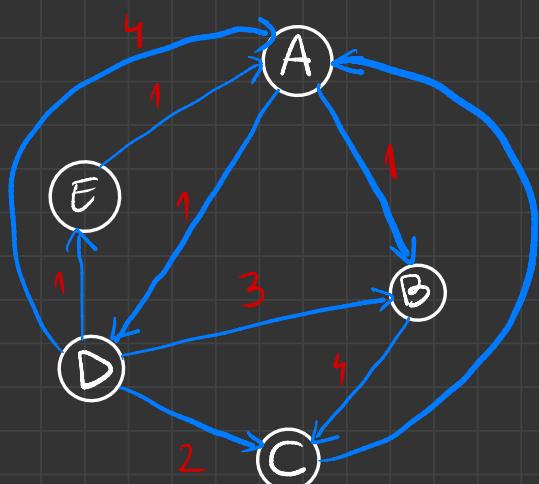
$$Q: \{(A, 1), (B, 3), (C, 2)\} \quad E-A : 1$$

$$Q: \{(\underline{B}, 1), (C, 2)\} \quad A-B : 1$$

$$Q: \{(\underline{C}, 2)\}$$

$$\frac{D-C : 2}{CT = 5}$$

ORIENTATE



LA:

$$A: \{(B, 1), (D, 1)\}$$

$$B: \{(C, 4)\}$$

$$C: \{(A, 3)\}$$

$$D: \{(E, 1), (B, 3), (A, 4), (C, 2)\}$$

$$E: \{(A, 1)\}$$

	A	B	C	D	E
A	0	1	∞	1	∞
B	∞	0	4	∞	∞
C	3	∞	0	∞	-
D	4	3	∞	2	1
E	1	∞	∞	∞	0

DFT-D

A	B	C	D	E
* ₁	* ₂	* ₃	* ₀	* ₁

D \sqsubset A - B - C
E

BFT-A

A	B	C	D	E
* ₀	* ₁	* ₂	* ₁	* ₂

A \sqsubset B - C
D - E

Dijkstra-A

A	B	C	D	E
*	*	*	*	*

Q: $\{(B, 1), (D, 1)\}$ A - B : 1

Q: $\{(C, 4+1), (D, 1)\}$ A - D : 1

Q: $\{(E, 1+1), (C, 1+2)\}$ A - D - E : 2

Q: $\{C, 3\}$ A - D - C : 3

Dijkstra-C

A	B	C	D	E
*	*	*	*	*

A: $\{(B, 1), (D, 1)\}$

B: $\{C, 4\}$

C: $\{A, 3\}$

D: $\{(E, 1), (B, 3), (A, 4), (C, 2)\}$

E: $\{(A, 1)\}$

Q: $\{A, 3\}$ C - A : 3

Q: $\{(B, 1+3), (D, 1+3)\}$ C - A - B : 4

Q: $\{D, 4\}$ C - A - D : 4

Q: $\{(E, 1+4)\}$ C - A - D - E : 5

Dijkstra - B

A * B * C * D * E *

Q: $\{(C, 4)\}$ B - C : 4

Q: $\{(A, 3+4)\}$ B - C - A : 7

Q: $\{(D, 1+7)\}$ B - C - A - D : 8

Q: $\{E, 1+8\}$ B - C - A - D - E : 9

Dijkstra - D

A * B C D E *

Q: $\{\underline{(E, 1)}, (B, 3), (A, 4), (C, 2)\}$ D - E : 1

Q: $\{\underline{(A, 1+1)}, (B, 5), (C, 2)\}$ D - E - A : 2

Q: $\{(B, 1+2), \underline{(C, 2)}\}$ D - C : 2

Q: $\{(B, 3)\}$ D - B : 3
D - E - A - B : 3

FLOYD

	A	B	C	D	E
A	0	1	∞	1	∞
B	∞	0	4	∞	∞
C	3	∞	0	∞	-
D	4	3	2	0	1
E	1	∞	∞	∞	0

A

	A	B	C	D	E
A	0	1	∞	1	∞
B	∞	0	4	∞	∞
C	3	4	0	4	∞
D	4	3	2	0	1
E	1	2	∞	2	0

B	A	B	C	D	E
A	0	1	5	1	∞
B	∞	0	4	∞	∞
C	3	4	0	4	∞
D	4	3	2	0	1
E	1	2	6	2	0

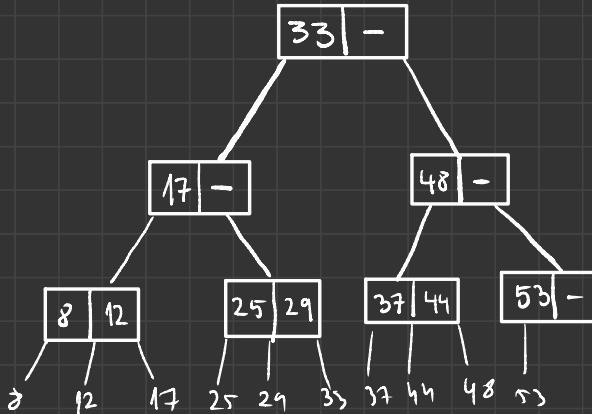
C	A	B	C	D	E
A	0	1	5	1	∞
B	7	0	4	8	∞
C	3	4	0	4	∞
D	4	3	2	0	1
E	1	2	6	2	0

D	A	B	C	D	E
A	0	1	3	1	2
B	7	0	4	8	9
C	3	4	0	4	5
D	4	3	2	0	1
E	1	2	4	2	0

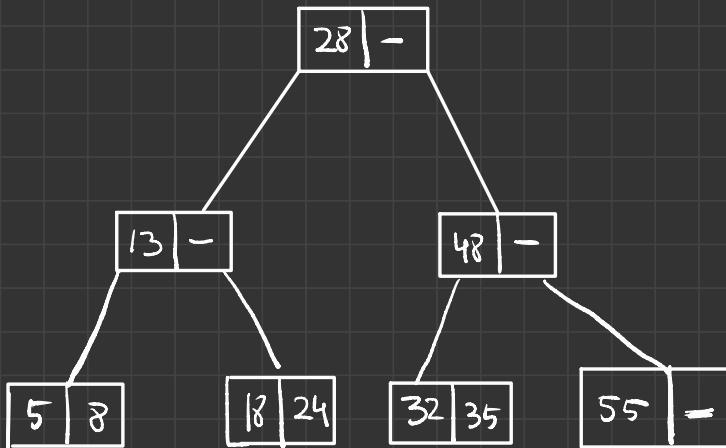
E	A	B	C	D	E
A	0	1	3	1	2
B	7	0	4	8	9
C	3	4	0	4	5
D	2	3	2	0	1
E	1	2	4	2	0

ARBORI 2-3

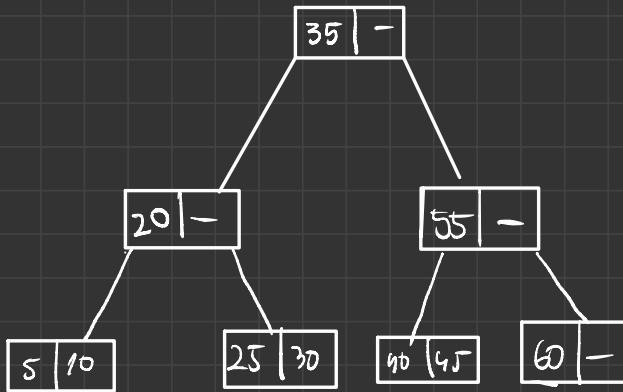
8 12 | 17 | 25 29 | 33 | 37 44 | 48 | 53



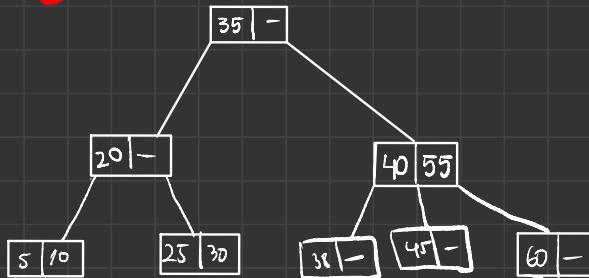
5 8 | 13 18 24 | 28 | 32 35 | 48 | 55



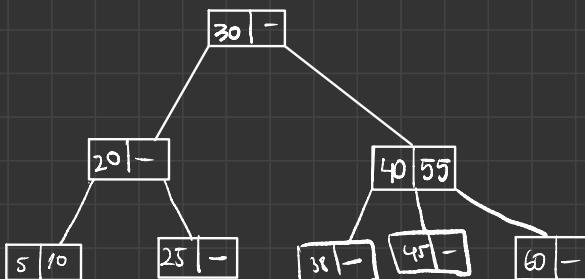
5 10 20 25 30 35 40 45 55 60



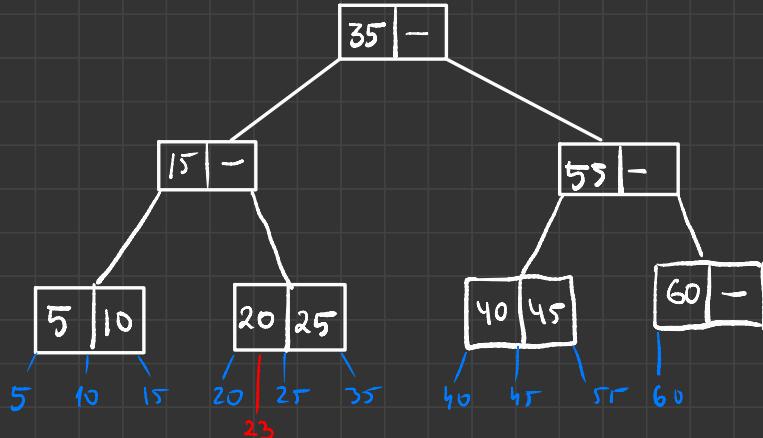
insert 38



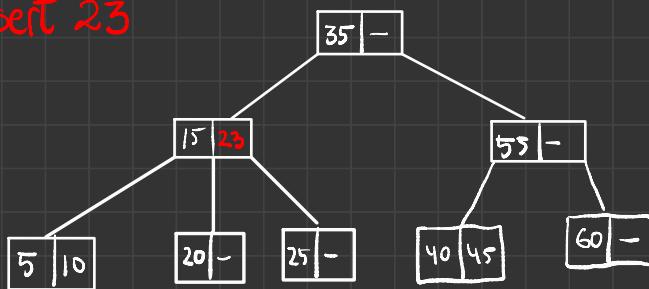
delete 35



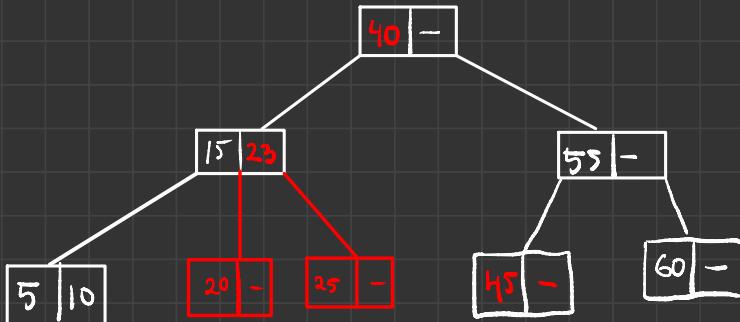
5 10 | 15 | 20 25 | 35 | 40 45 | 55 | 60



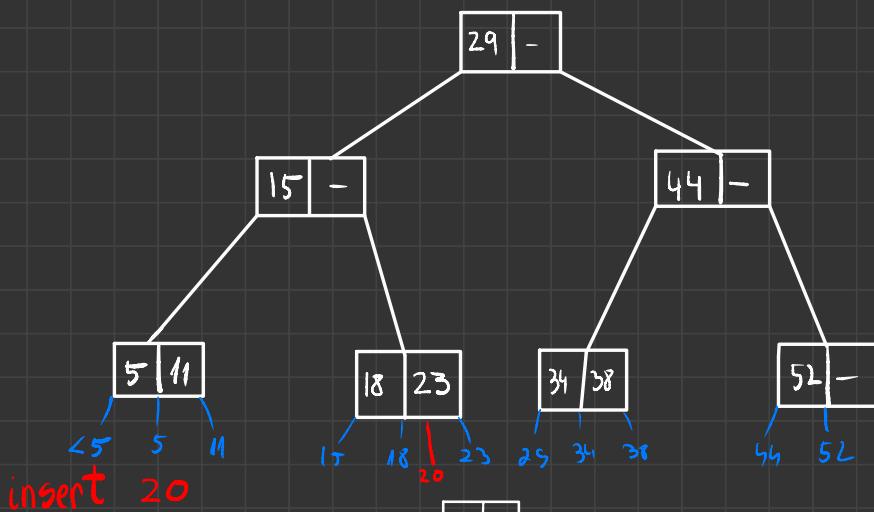
insert 23



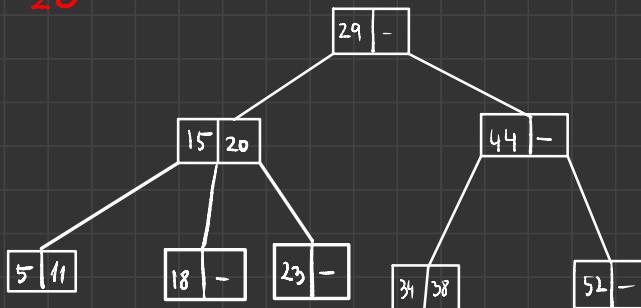
delete 35



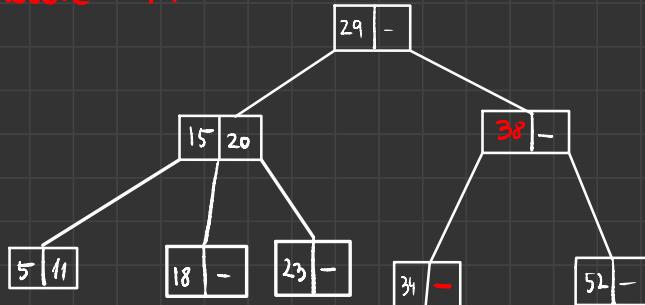
5 11 | 15 | 18 23 | 29 | 34 38 | 44 | 52



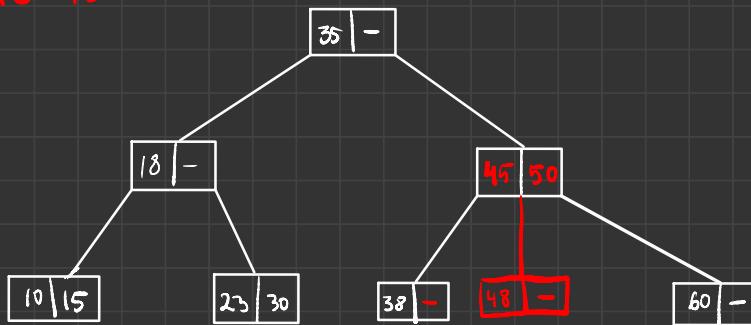
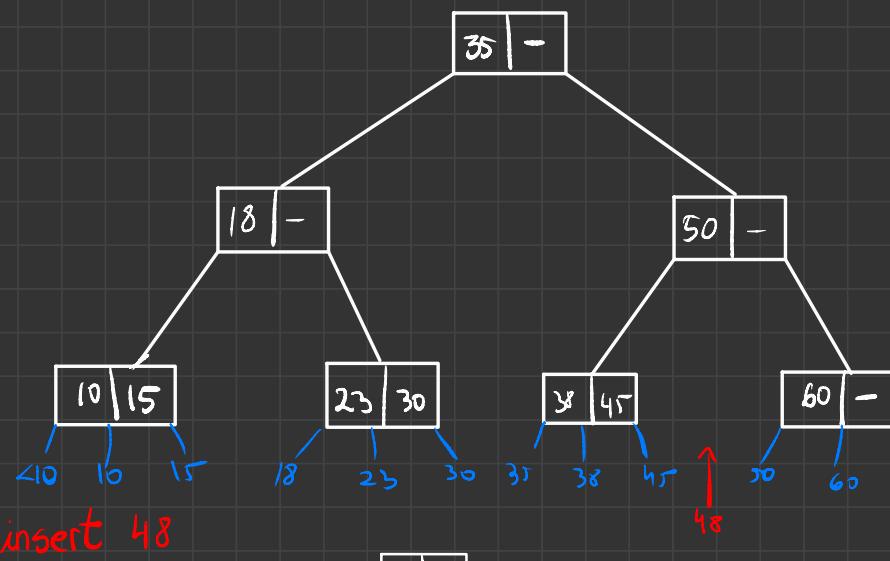
insert 20



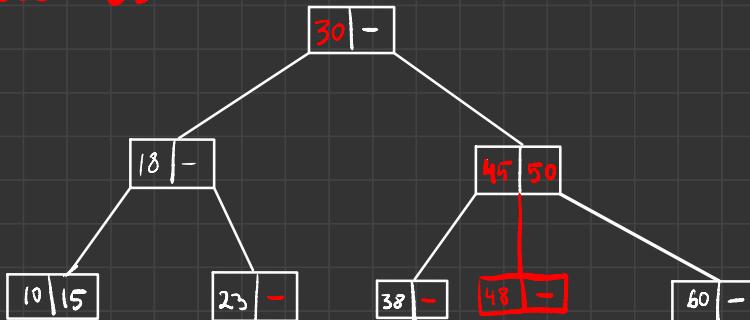
delete 44



10 15 18 | 23 30 | 35 | 38 45 | 50 | 60



delete 35



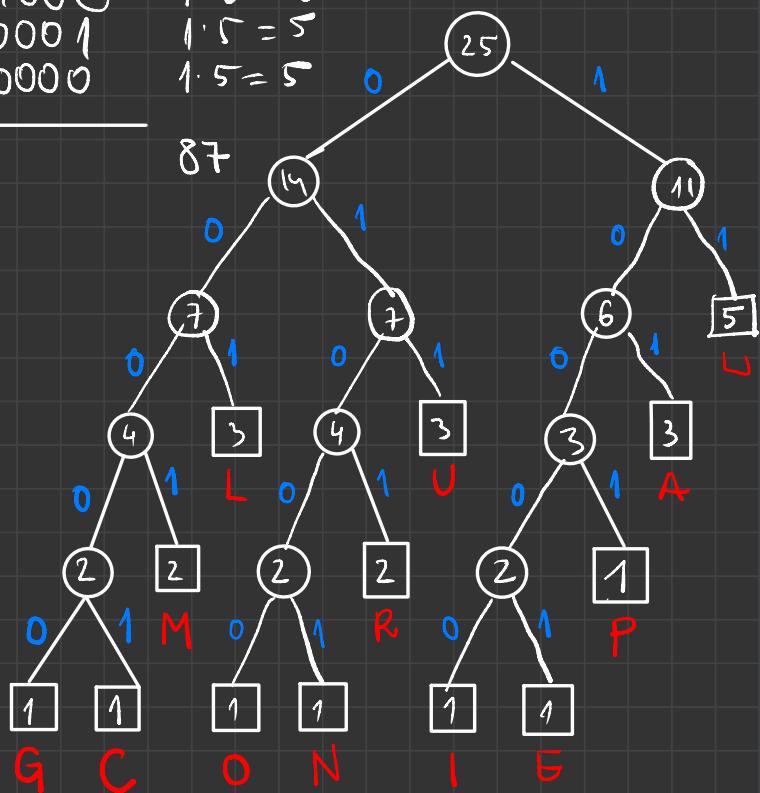
CODIFICARE HUFFMAN

AMPU LA MARE IN CURUL GOL

25 caractere

L - 5	A - 3	U - 3	$2 \cdot 5 = 10$
A - 3	A - 3	101	$3 \cdot 3 = 9$
M - 2	U - 3	011	$3 \cdot 3 = 9$
P - 1	L - 3	001	$3 \cdot 3 = 9$
U - 3	R - 2	0101	$2 \cdot 4 = 8$
L - 3	M - 2	0001	$2 \cdot 4 = 8$
R - 2	P - 1	1001	$1 \cdot 4 = 4$
E - 1	E - 1	10001	$1 \cdot 5 = 5$
I - 1	I - 1	10000	$1 \cdot 5 = 5$
G - 1	N - 1	01001	$1 \cdot 5 = 5$
O - 1	O - 1	01000	$1 \cdot 5 = 5$
N - 1	C - 1	00001	$1 \cdot 5 = 5$
C - 1	G - 1	00000	$1 \cdot 5 = 5$

$$25 \cdot 4b = 100$$



TEORIE

STEPS IN MAKING A PROGRAM

1. Planning and Analysis: Define the problem or task the program is intended to solve or automate. Determine the requirements of the program, including inputs, outputs and any constraints or limitations.
2. Design: Create a detailed plan for the program's structure and flow, including the use of data structures, algorithms, and any necessary user interface elements.
3. Implementation: Write the code for the program in a suitable programming language, following the design plan.
4. Testing: Test the program to ensure it functions as intended and debug any errors.
5. Deployment: Prepare the program for use by the intended audience, which may include creating installation packages, documentation, and user guides.
6. Maintenance: Continuously update and maintain the program to fix bugs, improve performance, and add new features.

EXECUTION PHASES OF A PROGRAM

1. Compilation: The source code of the program is translated into machine code by a compiler, which is saved as an executable file.
2. Loading: The executable file is loaded into memory by the operating system, and any necessary resources, such as data files, are also loaded.

3. Execution : The instructions in the program are executed by the central processing unit (CPU) in a sequence , as determined by the control flow of the program.
4. Interaction : The program may interact with the user , other programs , or external devices through input / output operations
5. The program will reach the end of its executions or be terminated by the user or system
6. Cleanup : Any allocated resources are freed and the pro