



POLITECNICO  
DI MILANO

# INFORMATICA

La gestione di tabelle  
composte di elementi  
creati dinamicamente

classe							
num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	mese	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

“Magazzino”

classe							
num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	mese	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

classe							
num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	mese	anno
0	7	Rossi	Marco	M	5	10	95
1	12	Violi	Aldo	M	10	5	96
2	48	Neri	Anna	F	4	7	95
3	63	Verdi	Remo	M	5	8	96
4	84	Gialli	Carla	F	5	11	95

classe							
num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	mese	anno
0	7	Rossi	Marco	M	5	10	95
1	12	Violi	Aldo	M	10	5	96
2	48	Neri	Anna	F	4	7	95
3	63	Verdi	Remo	M	5	8	96
4	84	Gialli	Carla	F	5	11	95



## Tabella statica

classe							
num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	mese	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

```

const int DIM = 8;
struct InsStudenti
{
    int num;
    Studente elenco[DIM];
};

```

7	Rossi	Marco	M	5	10	95		
---	-------	-------	---	---	----	----	--	--

48	Neri	Anna	F	4	7	95		
----	------	------	---	---	---	----	--	--

63	Verdi	Remo	M	5	8	96		
----	-------	------	---	---	---	----	--	--

84	Gialli	Carla	F	5	11	95		
----	--------	-------	---	---	----	----	--	--

--	--	--	--	--	--	--	--	--

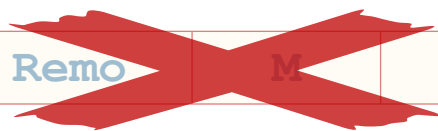
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7	Rossi	Marco	M	5	10	95		
---	-------	-------	---	---	----	----	--	--

48	Neri	Anna	F	4	7	95		
----	------	------	---	---	---	----	--	--

63	Verdi	Remo	M	5	8	96		
----	-------	------	---	---	---	----	--	--



84	Gialli	Carla	F	5	11	95		
----	--------	-------	---	---	----	----	--	--

12	Violi	Aldo	M	10	5	96		
----	-------	------	---	----	---	----	--	--



## Puntatori

7	Rossi	Marco	M	5	10	95		
---	-------	-------	---	---	----	----	--	--

48	Neri	Anna	F	4	7	95		
----	------	------	---	---	---	----	--	--

63	Verdi	Remo	M	5	8	96		
----	-------	------	---	---	---	----	--	--

84	Gialli	Carla	F	5	11	95		
----	--------	-------	---	---	----	----	--	--

## Allocazione dinamica

7	Rossi	Marco	M	5	10	95		
---	-------	-------	---	---	----	----	--	--

48	Neri	Anna	F	4	7	95		
----	------	------	---	---	---	----	--	--

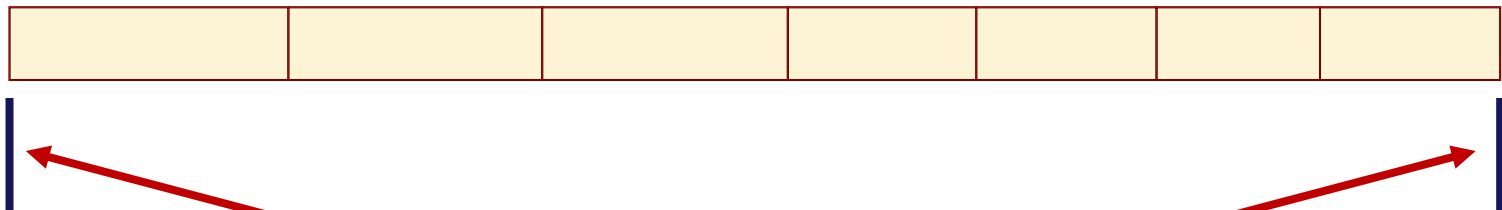
63	Verdi	Remo	M	5	8	96		
----	-------	------	---	---	---	----	--	--

84	Gialli	Carla	F	5	11	95		
----	--------	-------	---	---	----	----	--	--

12	Violi	Aldo	M	10	5	96		
----	-------	------	---	----	---	----	--	--

**new** *Tipo*

**new Studente**



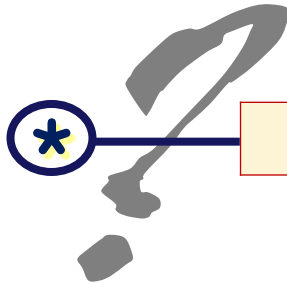
***posizione  
in memoria***

Puntatore all'oggetto

**new Studente**



new Studente



12	Violi	Aldo	M	10	5	96
----	-------	------	---	----	---	----

new Studente



12	Violi	Aldo	M	10	5	96
----	-------	------	---	----	---	----

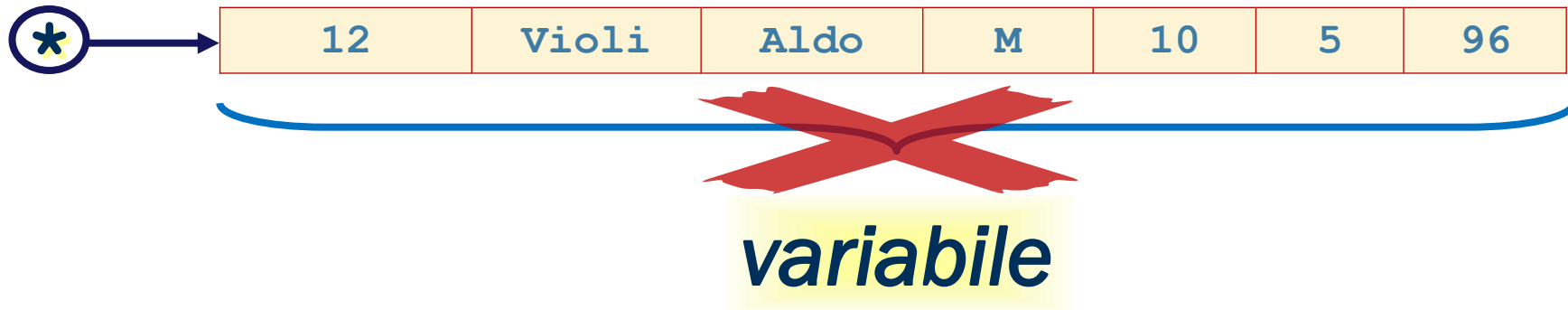
new Studente



12	Violi	Aldo	M	10	5	96
----	-------	------	---	----	---	----



new Studente



new Studente



new Studente

12	Violi	Aldo	M	10	5	96
----	-------	------	---	----	---	----

Studente \* temp

## Assegnazione

`new` **Studente**



**Studente** \* **temp**

new Studente

12	Violi	Aldo	M	10	5	96
----	-------	------	---	----	---	----

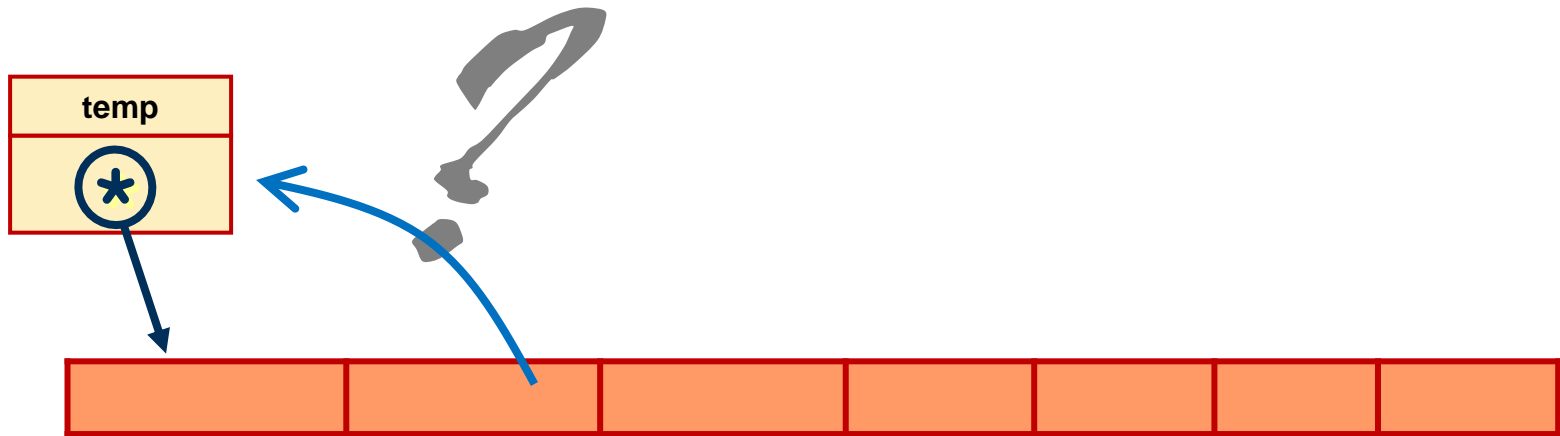
Studente \* temp

## Assegnazione

temp

--	--	--	--	--	--	--

```
Studente *temp  
temp = new Studente
```



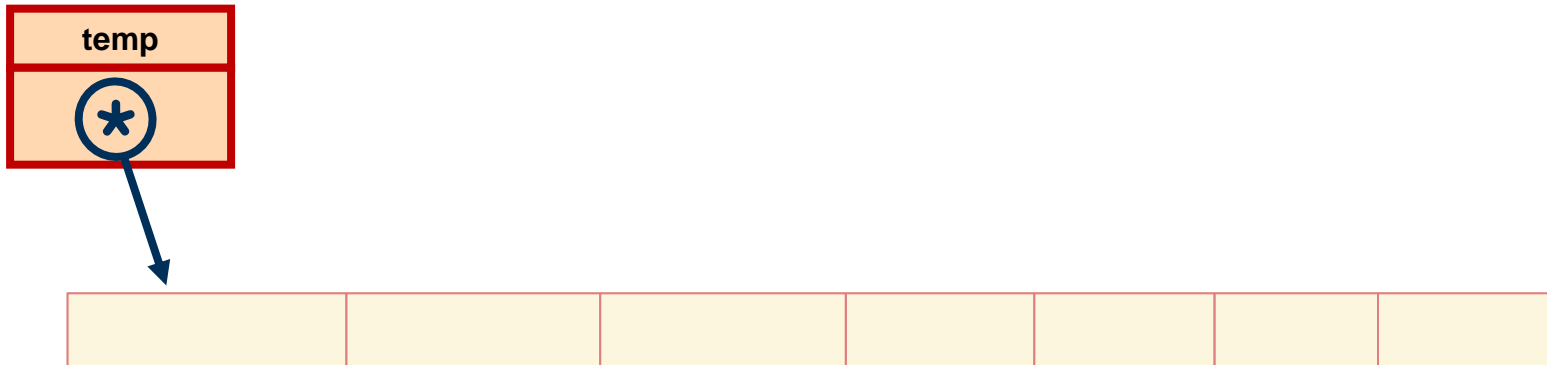
Studente \*temp  
temp = new Student

## Dereferenziazione

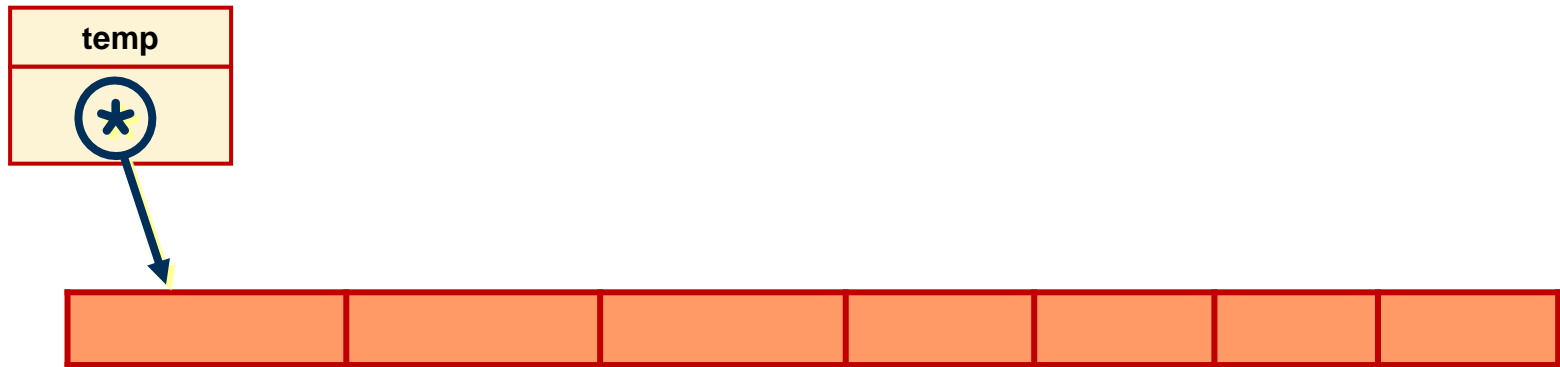


\* temp



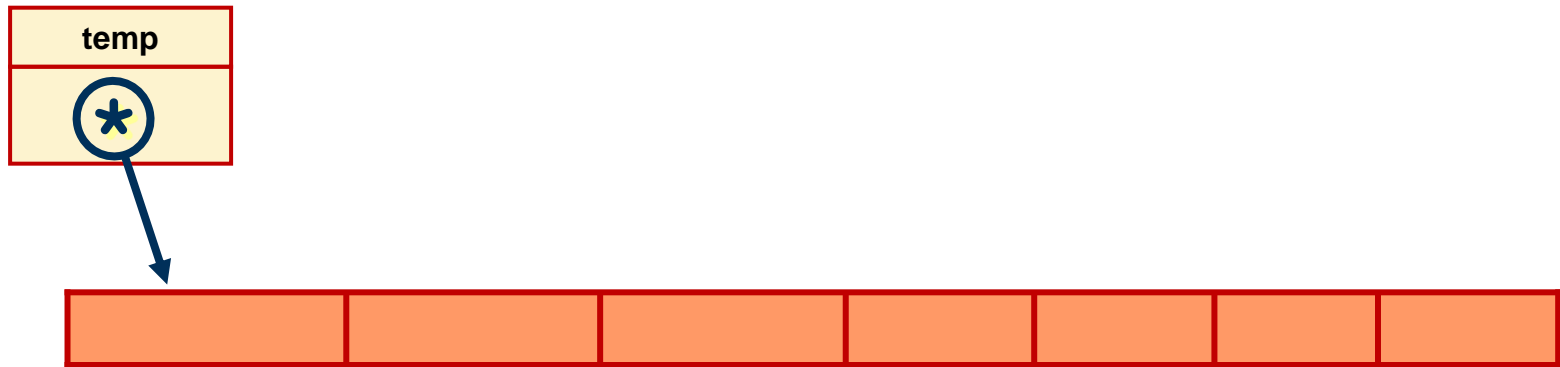


temp



\* temp

classe							
num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	mese	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							



```
Studente *temp  
temp = new Studente
```

## inserisciSeNonEsiste

7	Rossi	Marco	M	5	10	95		
---	-------	-------	---	---	----	----	--	--

48	Neri	Anna	F	4	7	95		
----	------	------	---	---	---	----	--	--

63	Verdi	Remo	M	5	8	96		
----	-------	------	---	---	---	----	--	--

84	Gialli	Carla	F	5	11	95		
----	--------	-------	---	---	----	----	--	--

12	Violi	Aldo	M	10	5	96		
----	-------	------	---	----	---	----	--	--

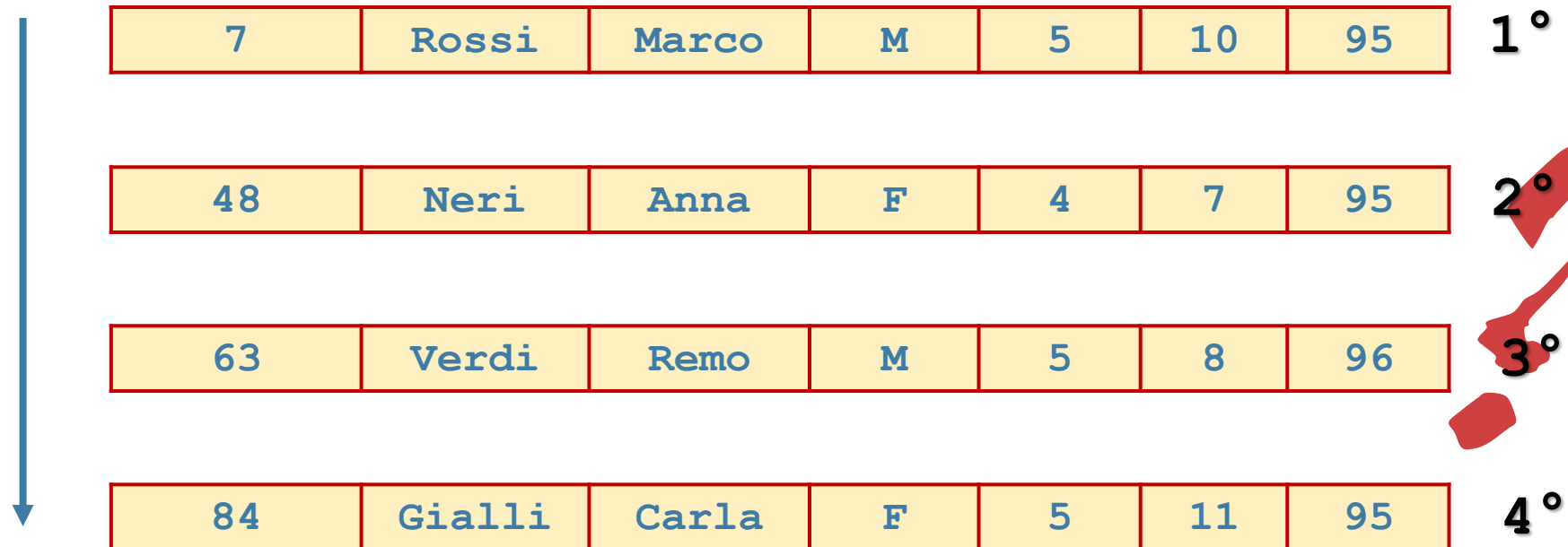
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num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	mese	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

7	Rossi	Marco	M	5	10	95
---	-------	-------	---	---	----	----

48	Neri	Anna	F	4	7	95
----	------	------	---	---	---	----

63	Verdi	Remo	M	5	8	96
----	-------	------	---	---	---	----

```
Studente *temp  
temp = new Studente
```



7	Rossi	Marco	M	5	10	95	1°
48	Neri	Anna	F	4	7	95	2°
63	Verdi	Remo	M	5	8	96	3°
84	Gialli	Carla	F	5	11	95	4°

```
Studente *temp  
temp = new Studente
```



7	Rossi	Marco	M	5	10	95
---	-------	-------	---	---	----	----

48	Neri	Anna	F	4	7	95
----	------	------	---	---	---	----

63	Verdi	Remo	M	5	8	96
----	-------	------	---	---	---	----

84	Gialli	Carla	F	5	11	95
----	--------	-------	---	---	----	----

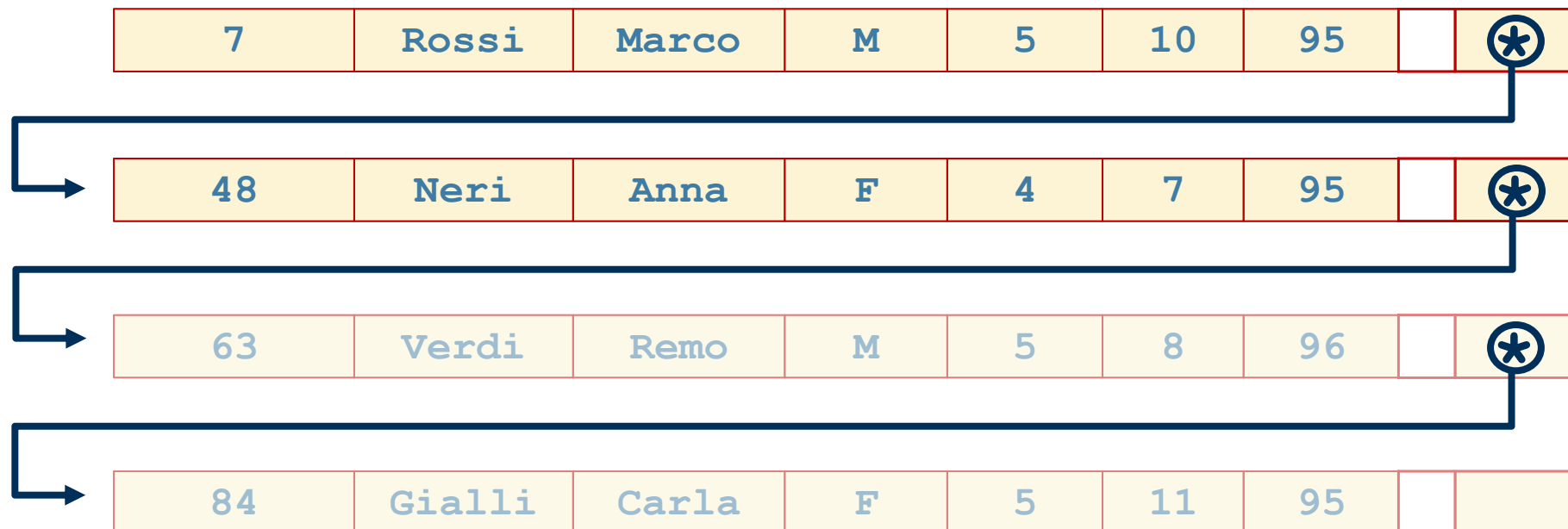
Puntatore 

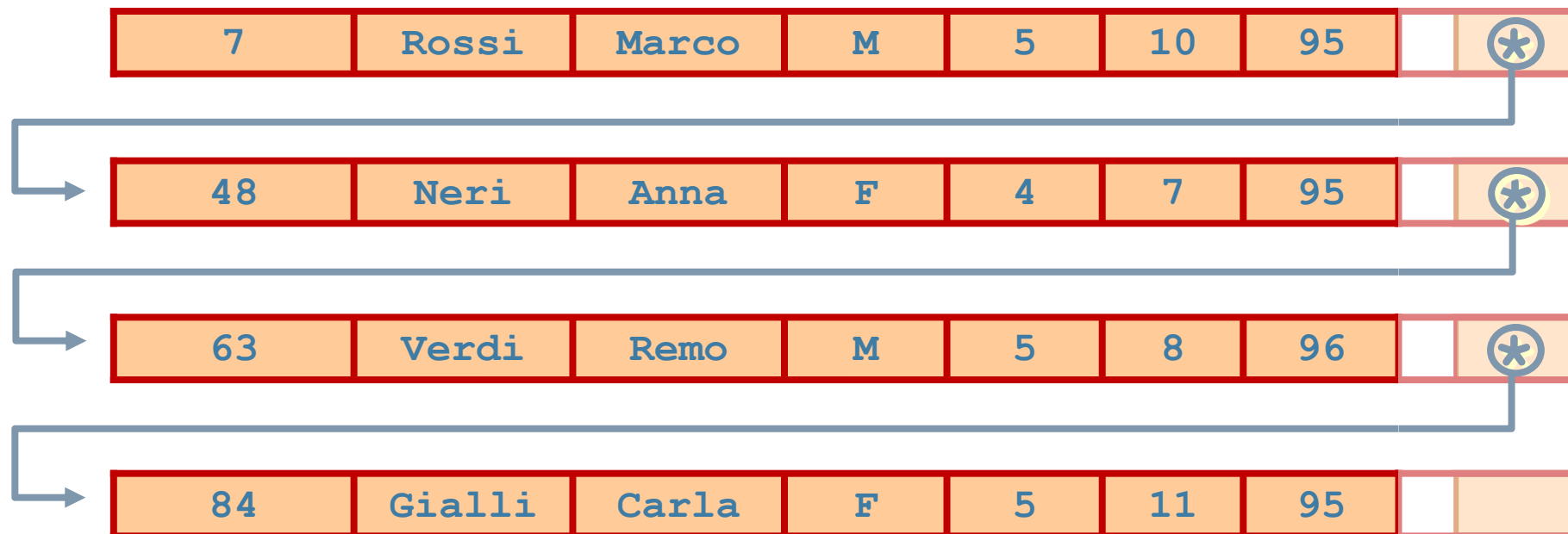
7	Rossi	Marco	M	5	10	95		
---	-------	-------	---	---	----	----	--	--

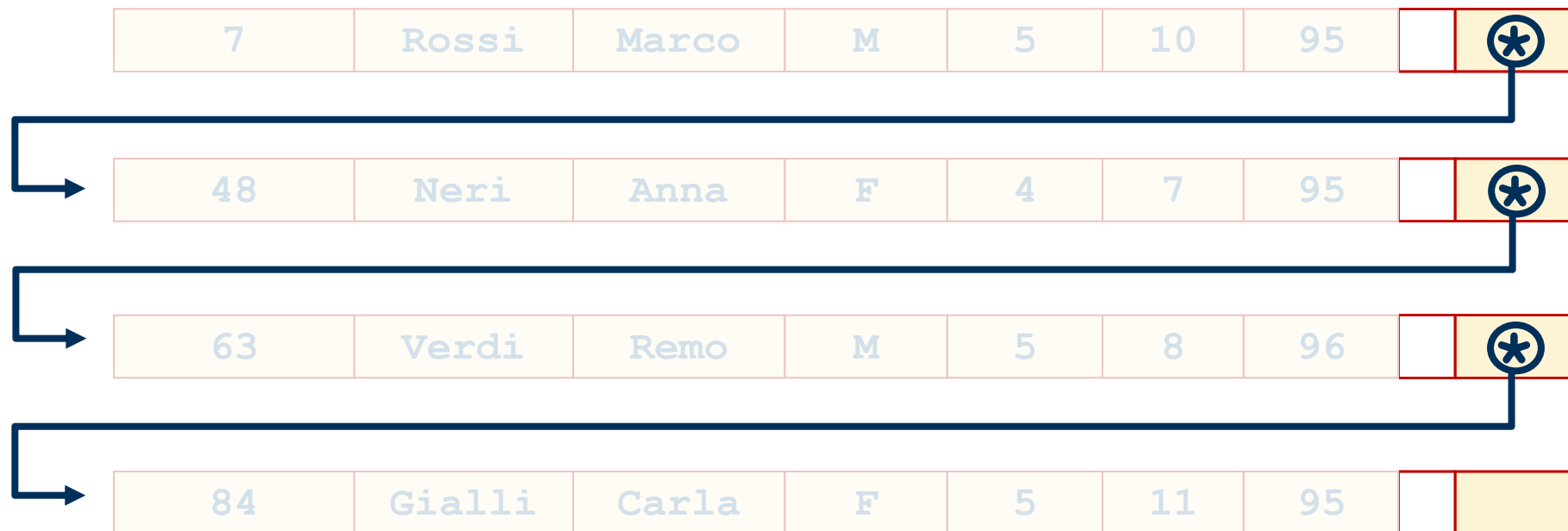
48	Neri	Anna	F	4	7	95		
----	------	------	---	---	---	----	--	--

63	Verdi	Remo	M	5	8	96		
----	-------	------	---	---	---	----	--	--

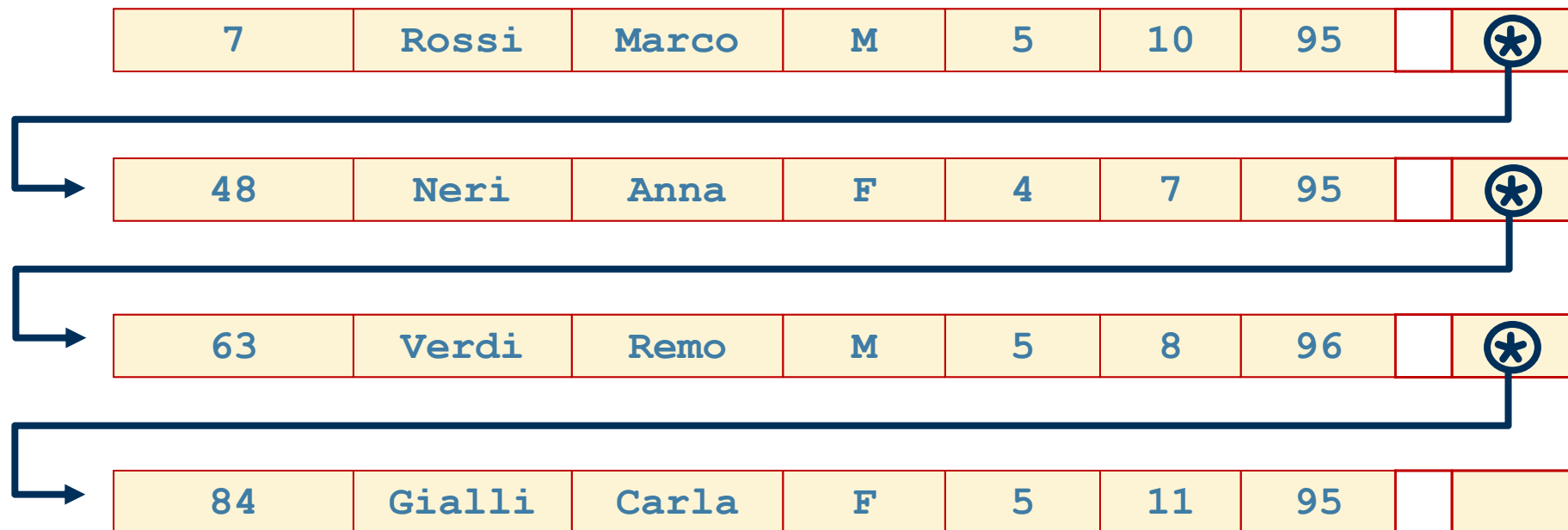
84	Gialli	Carla	F	5	11	95		
----	--------	-------	---	---	----	----	--	--



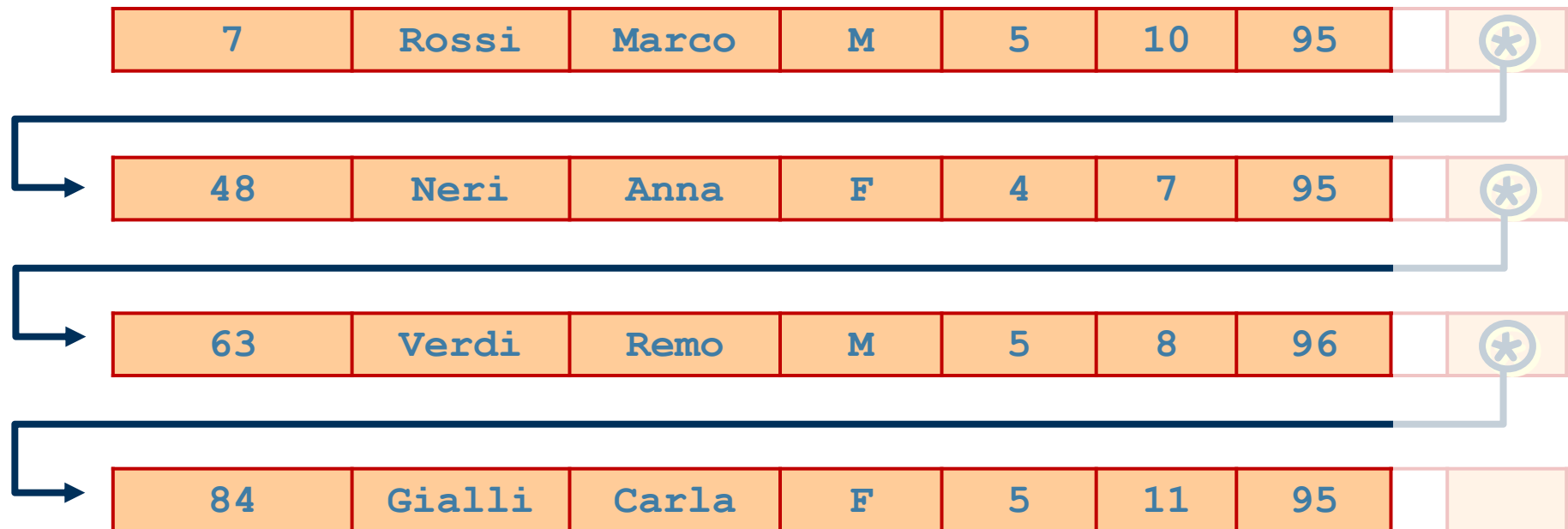




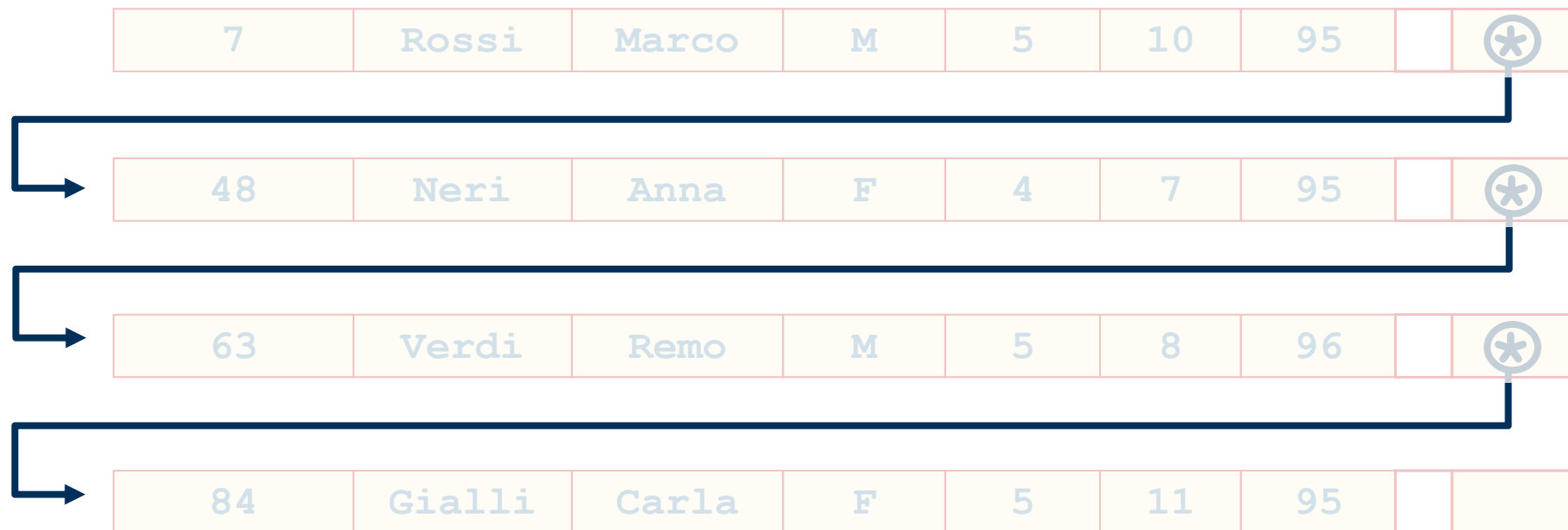
Lista



```
struct Nodo
{
    Studente datiStud;
    Nodo *nextPtr;
};
```



```
struct Nodo
{
    Studente datiStud;
    Nodo *nextPtr;
};
```

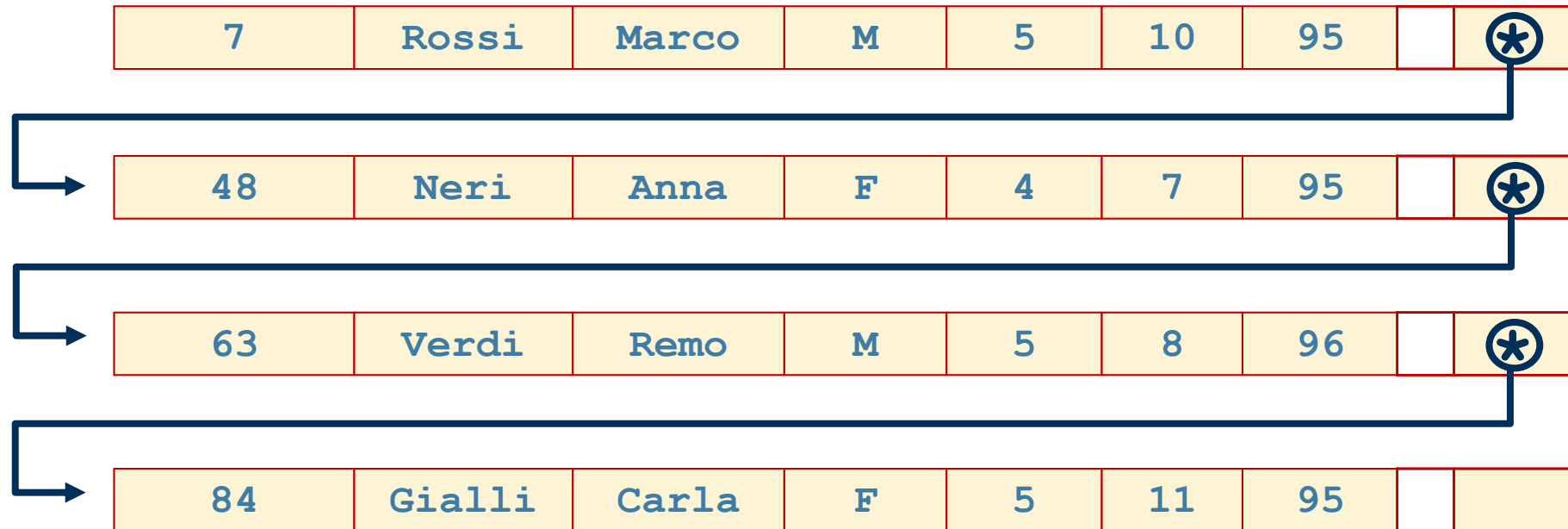


```
struct Nodo
{
    Studente datiStud;
    Nodo *nextPtr;
};
```

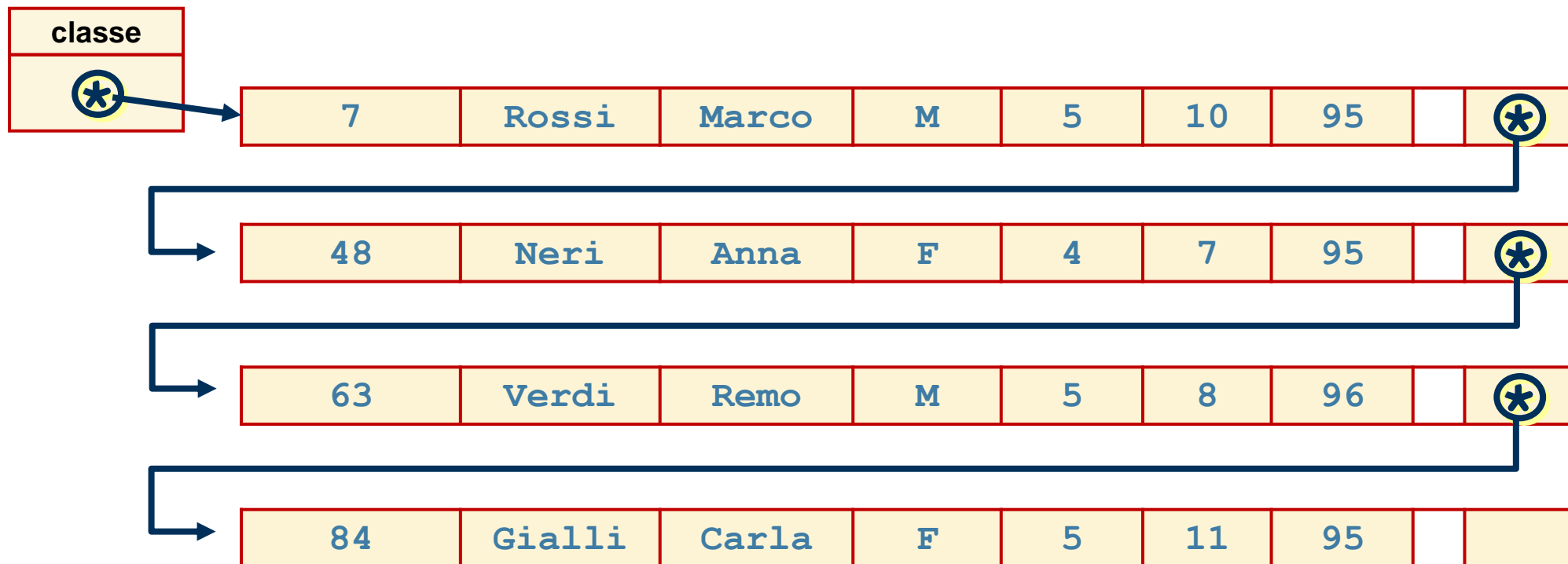


classe							
num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	mese	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

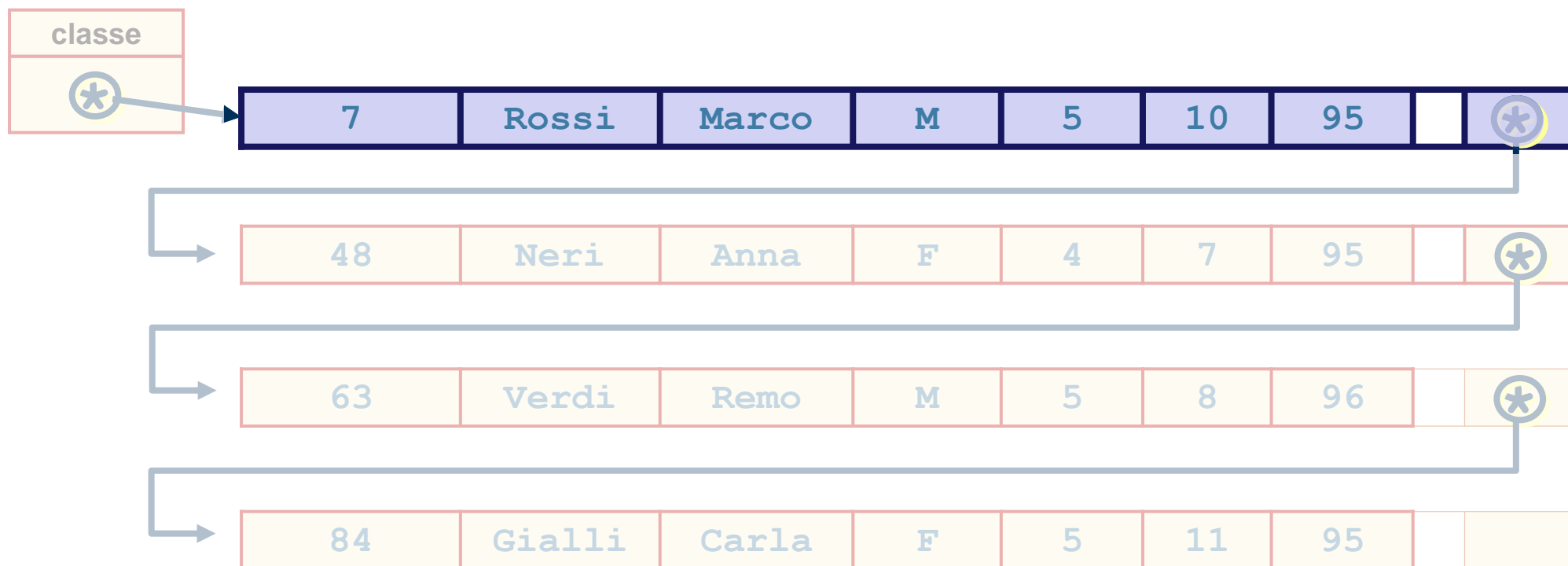
**InsStudenti**    **classe;**



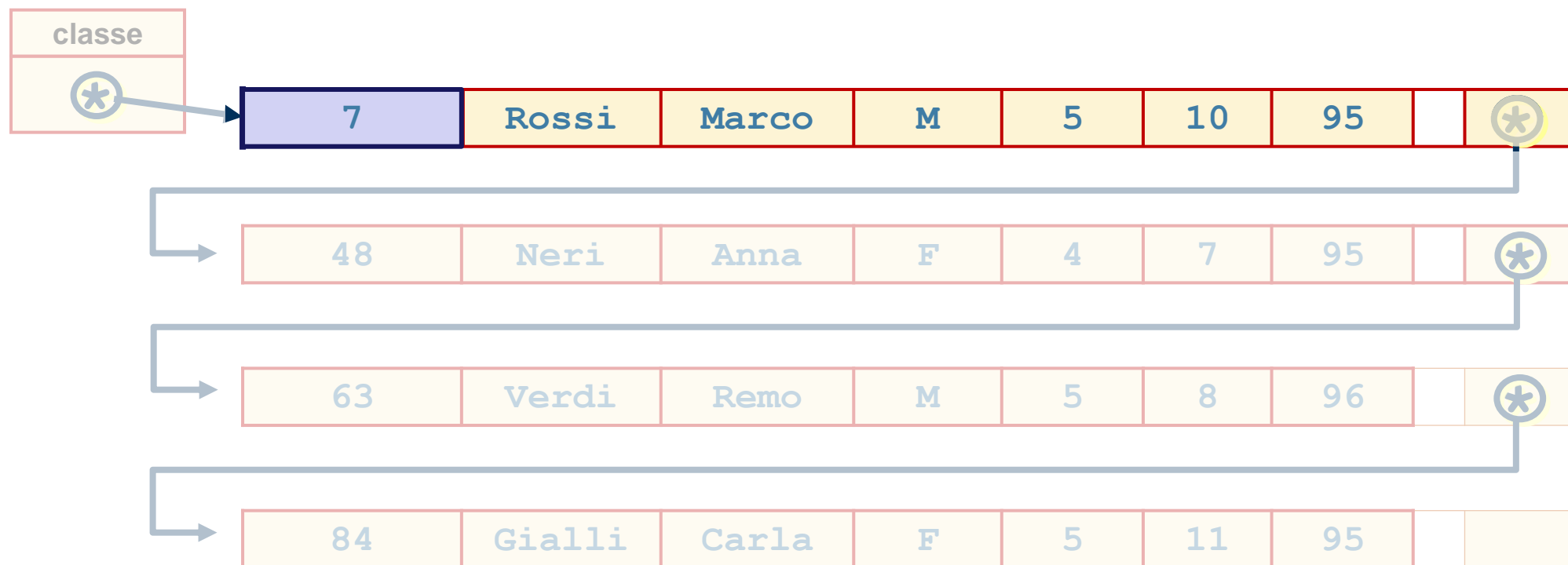
InsStudenti classe;



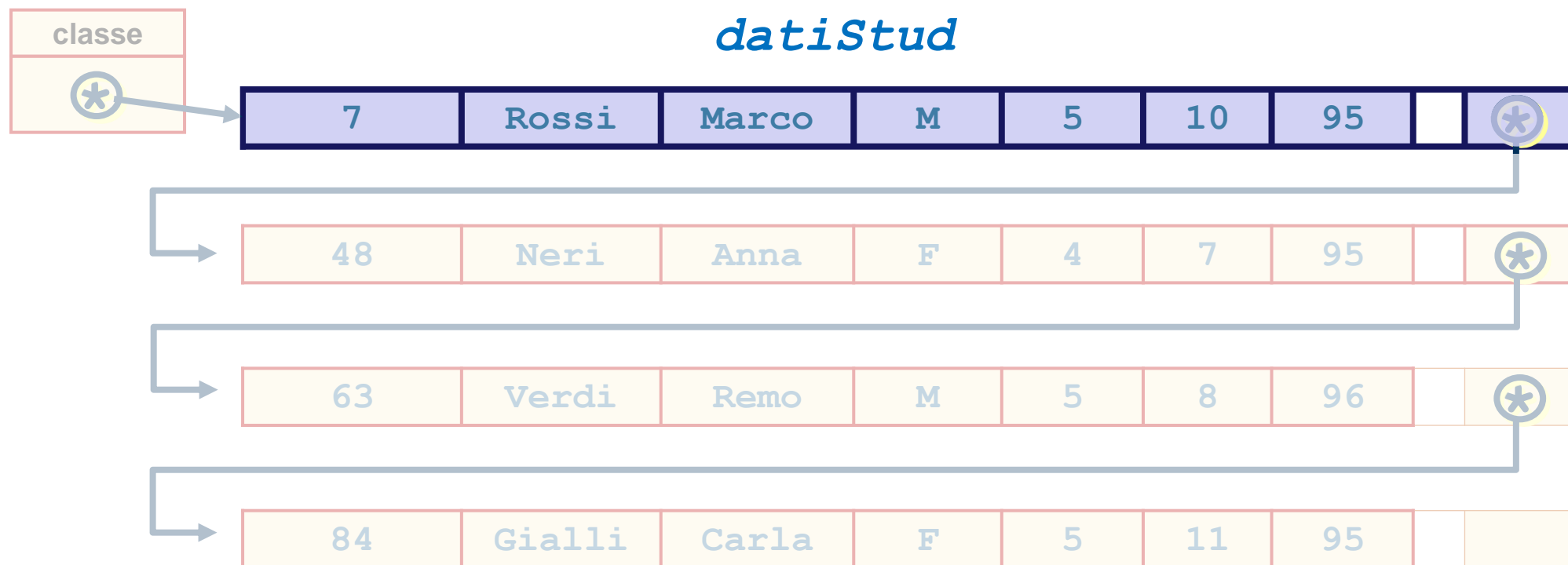
**Nodo** \*classe;



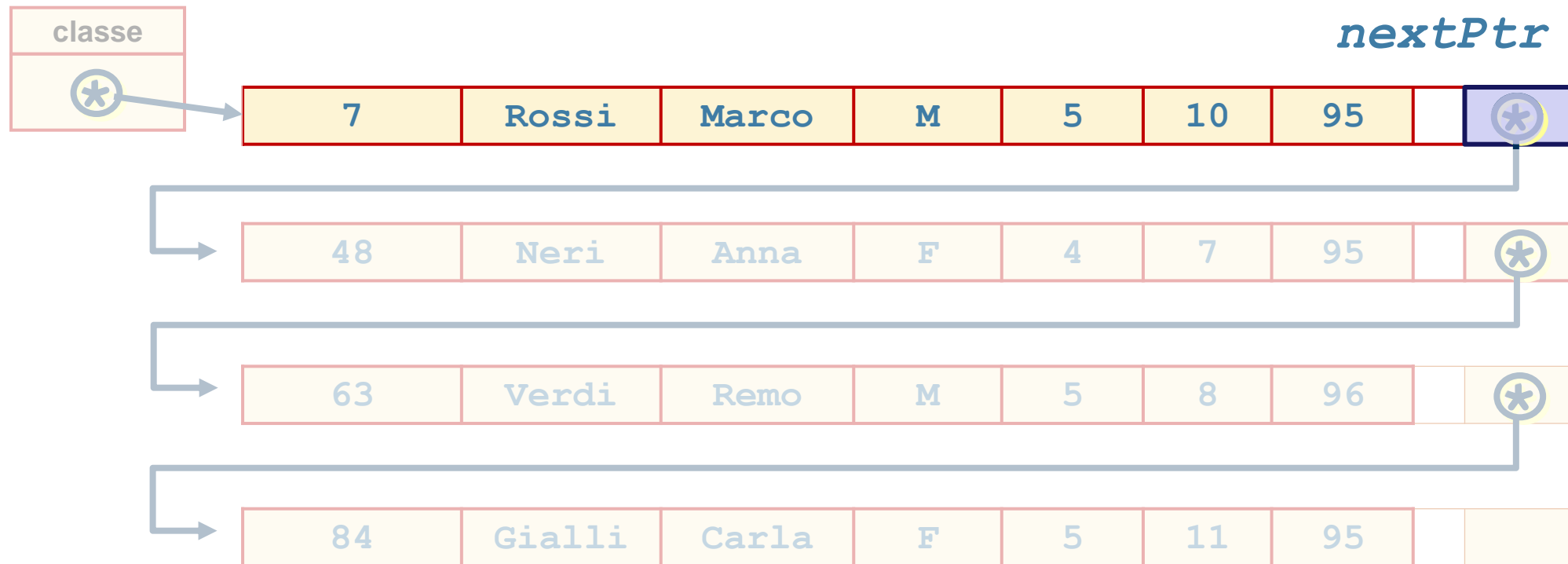
**\*classe**



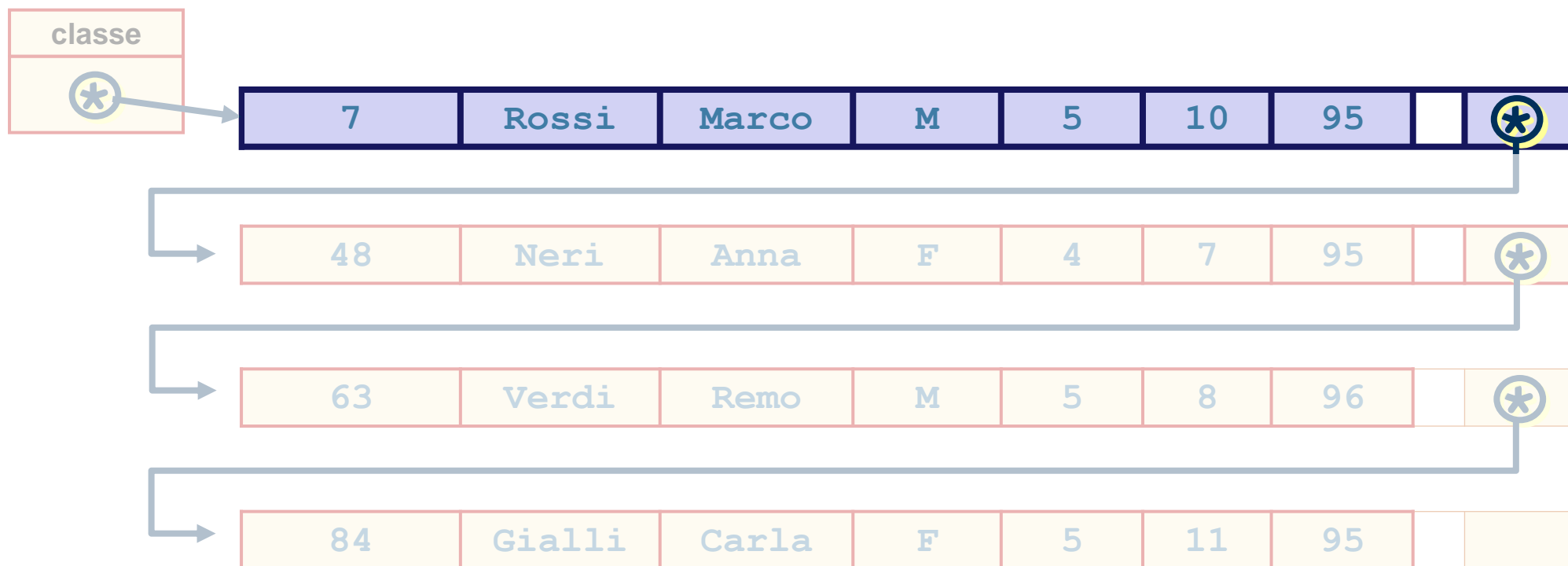
\*classe



*\*classe*

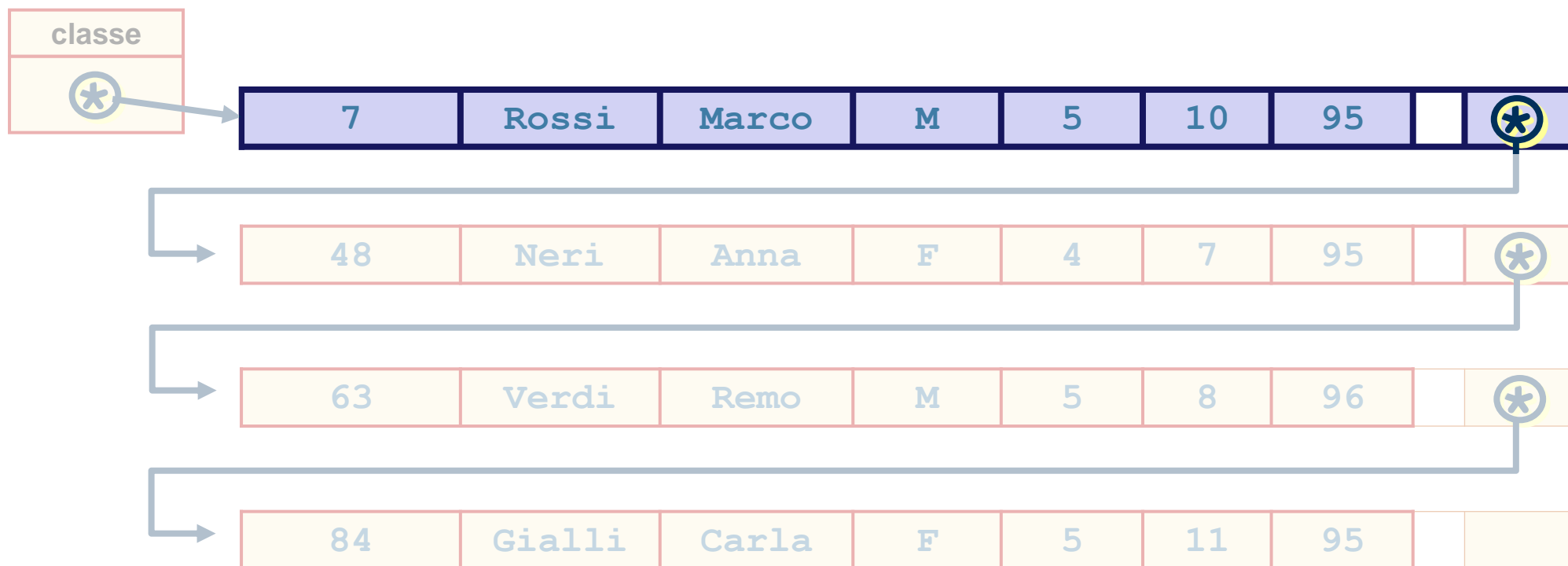


*\*classe*

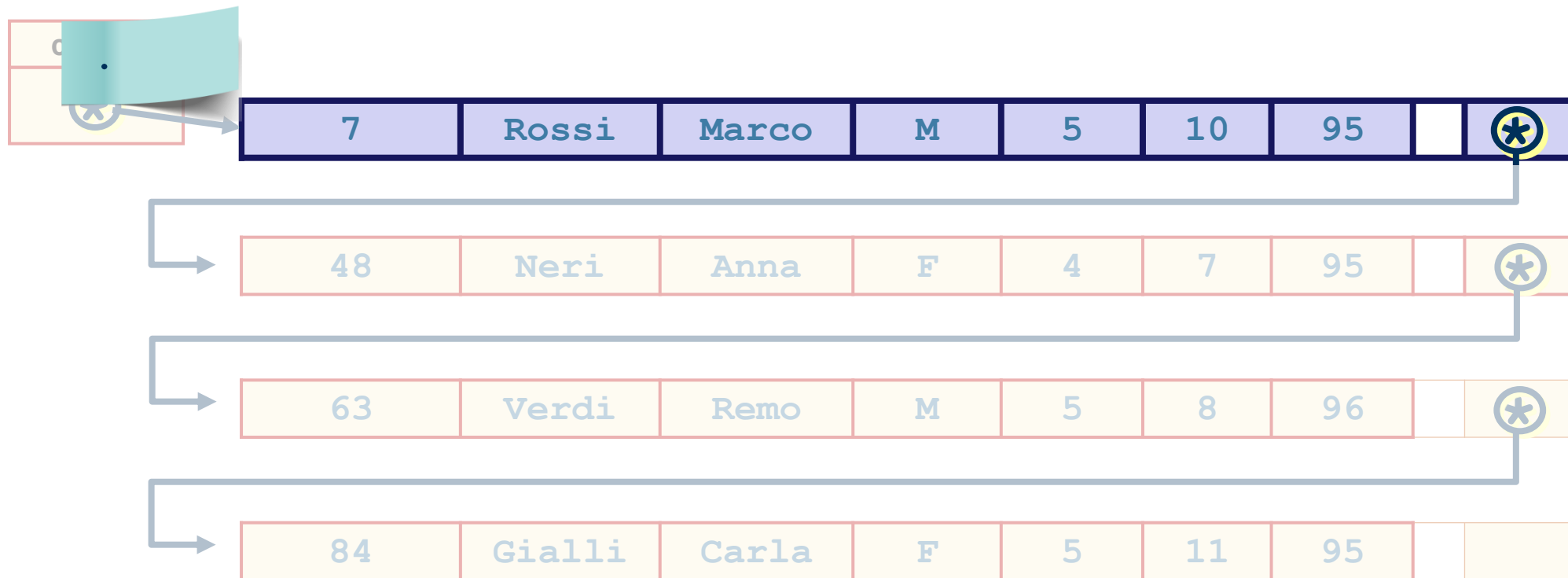


`(*classe).datiStud`

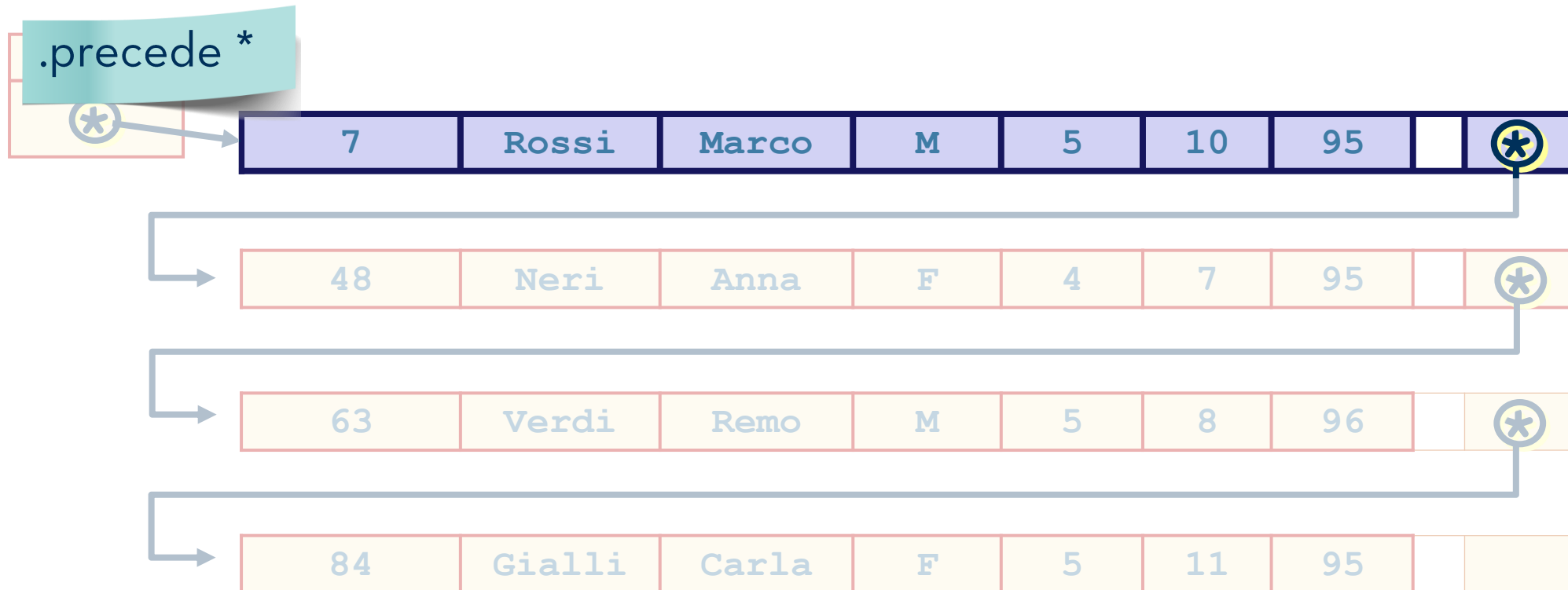




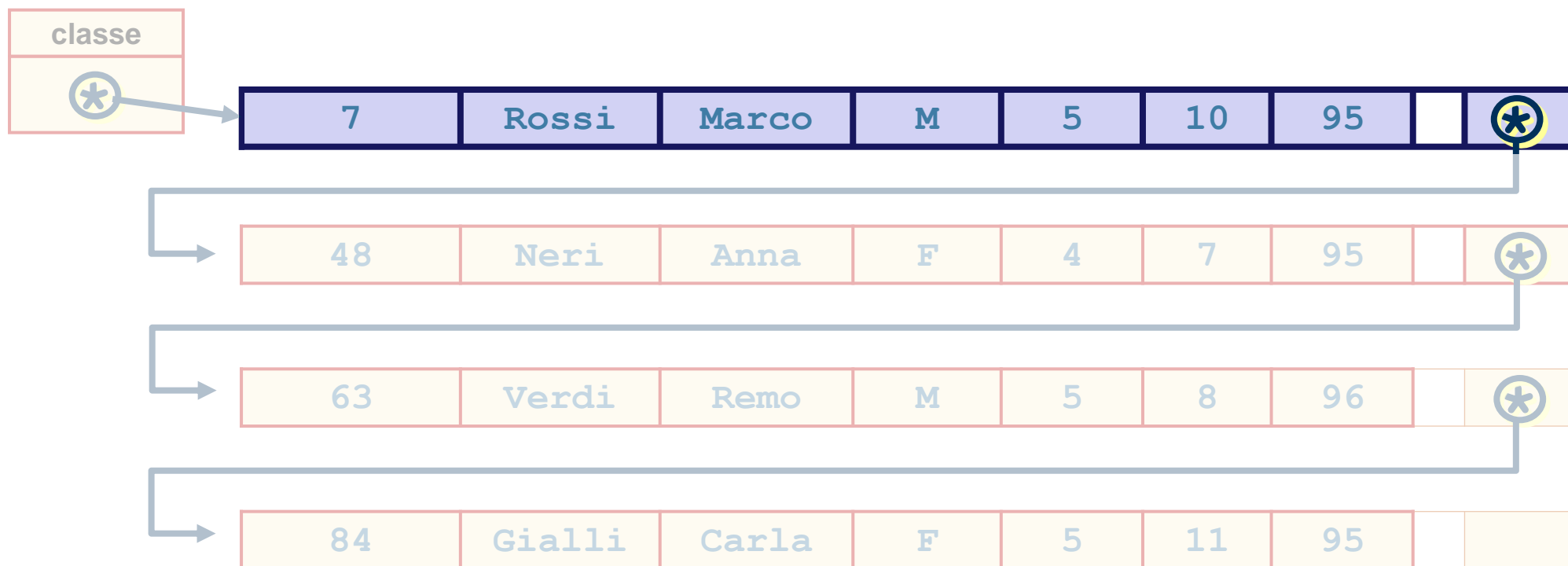
**(\*classe).datiStud**



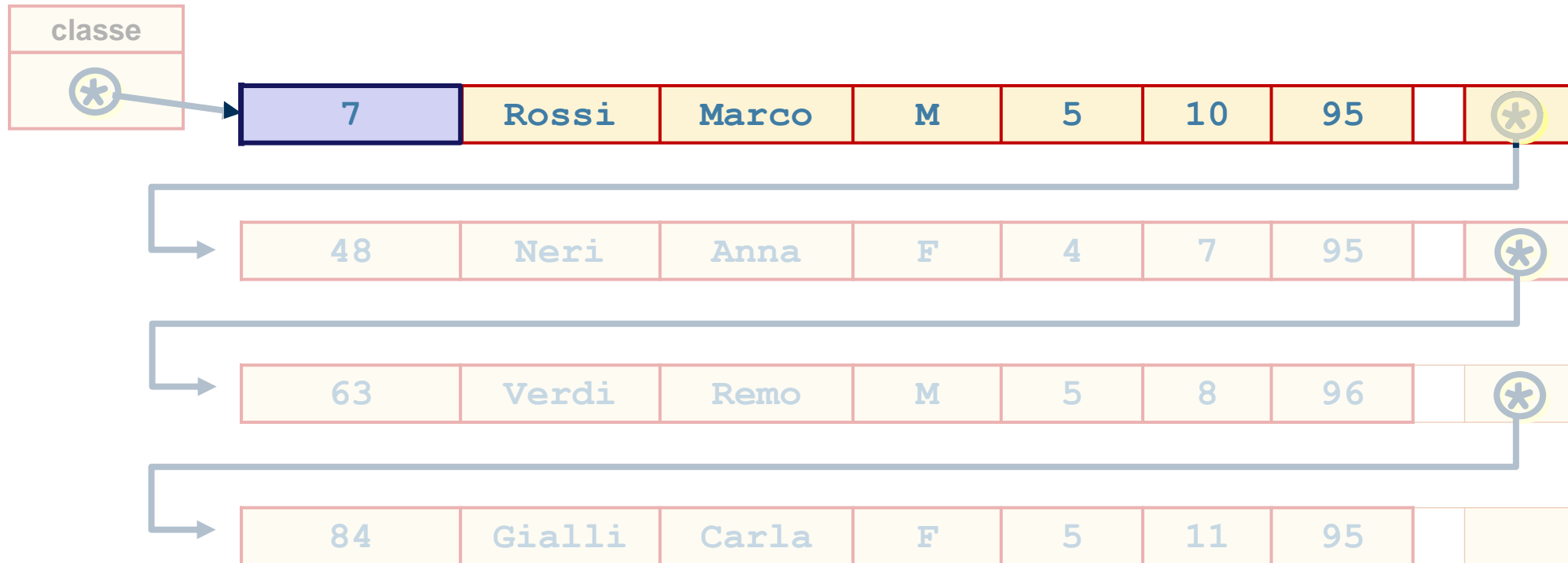
(\*classe)  datiStud



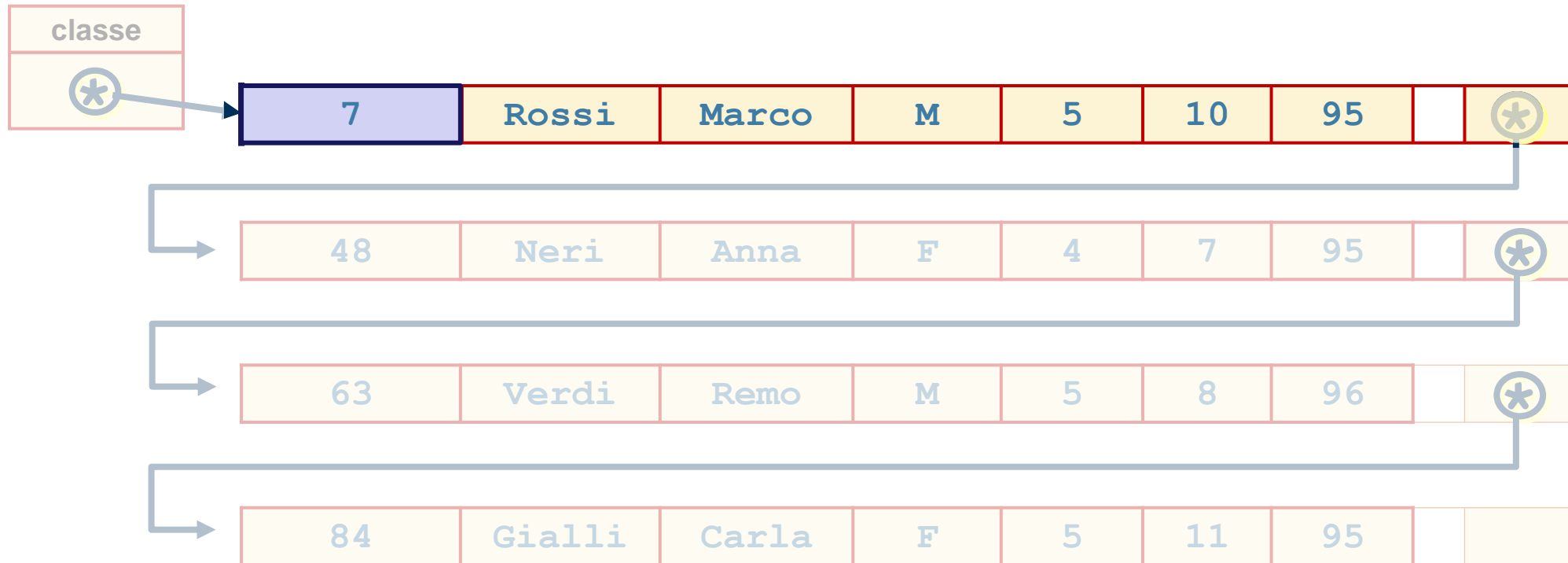
(\*classe).datiStud



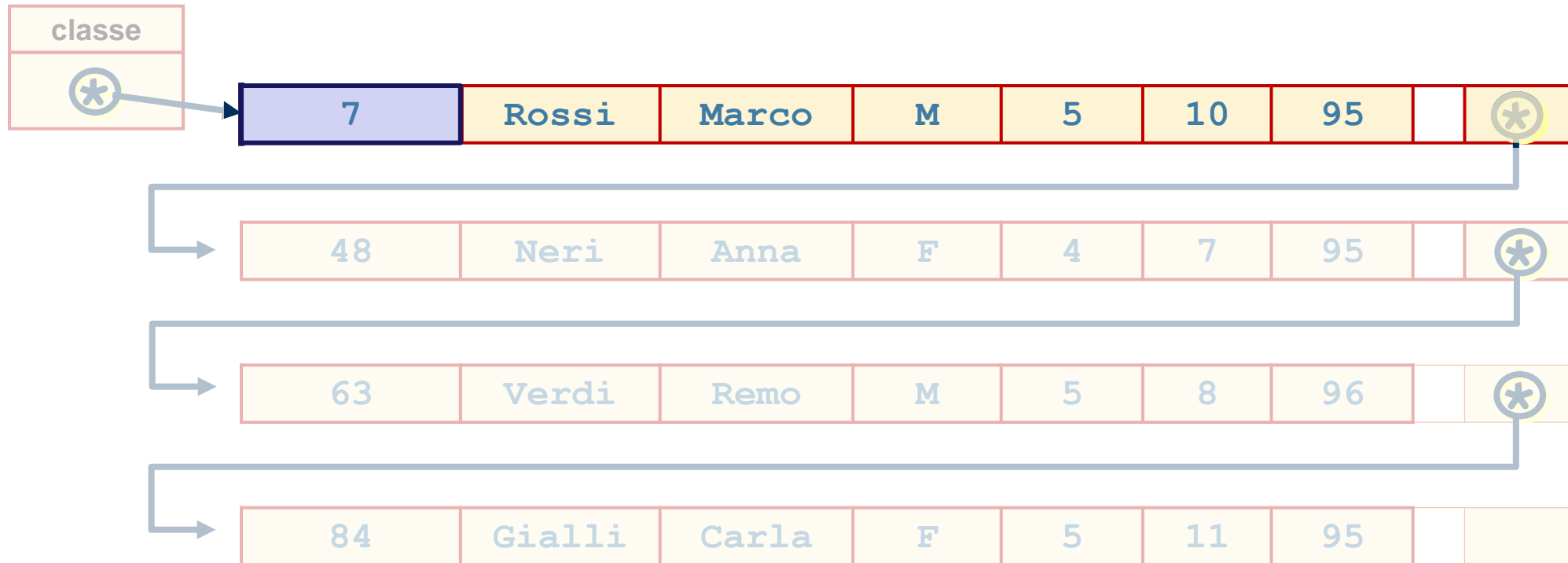
~~\*classe .datiStud~~



`(*classe).datiStud`

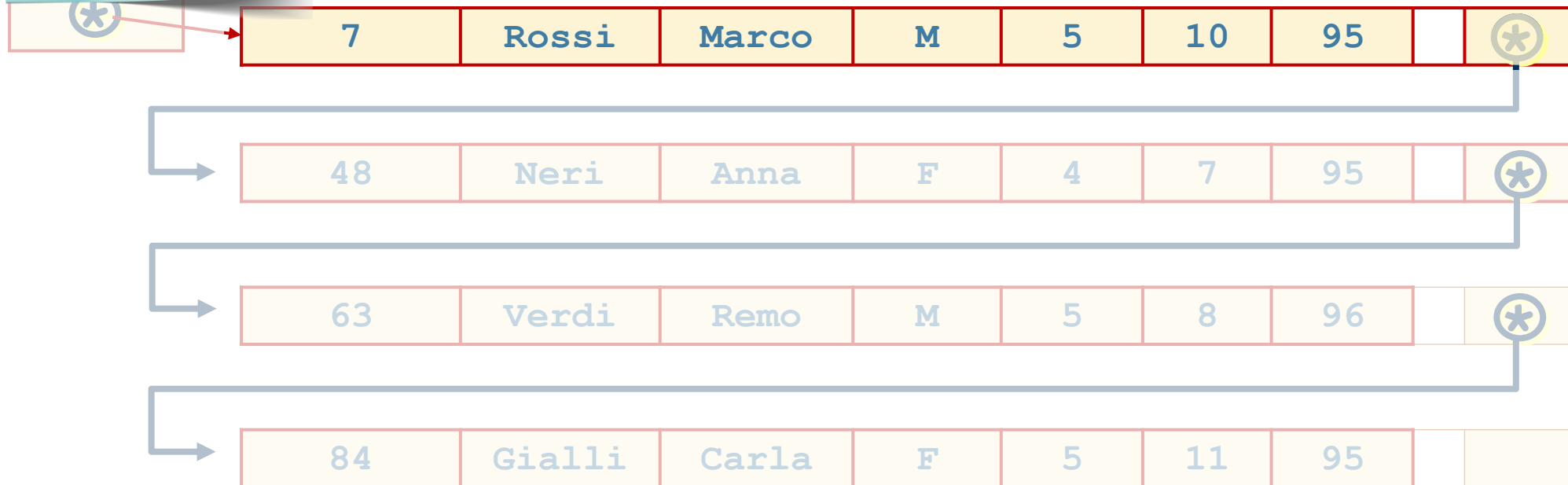


`(*classe).datiStud .matricola`



`(*classe).datiStud.matricola`

Operatore

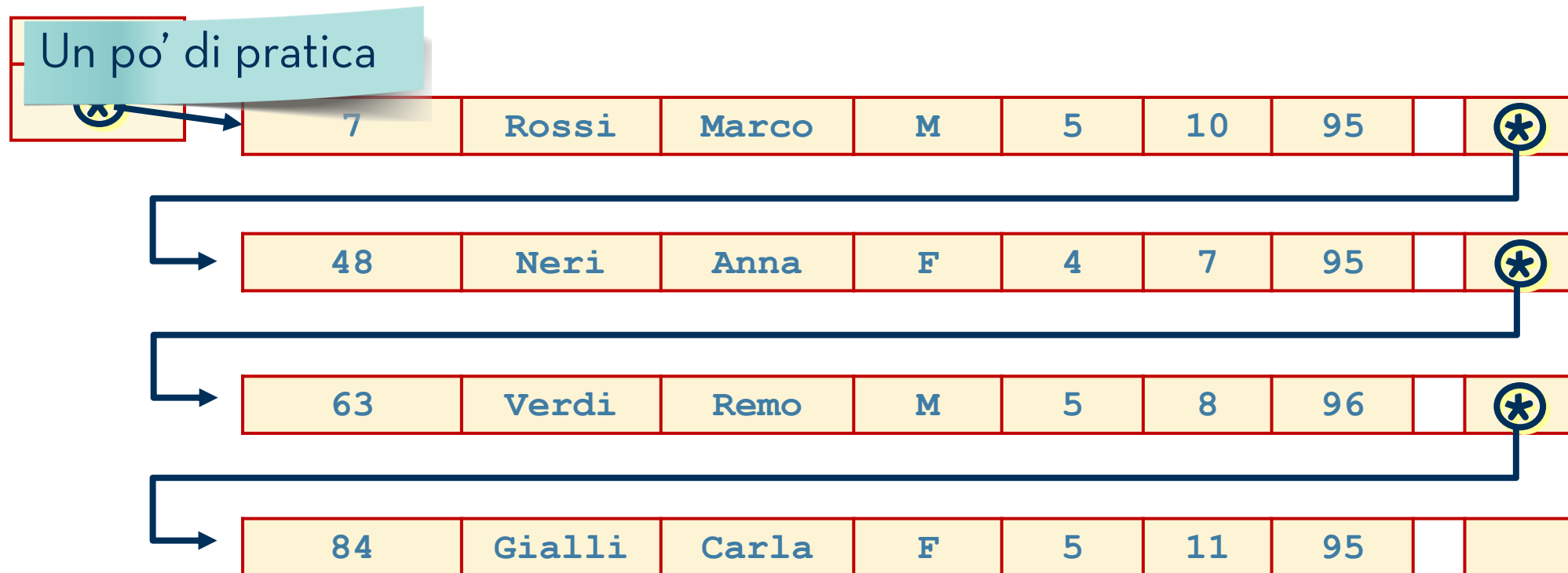


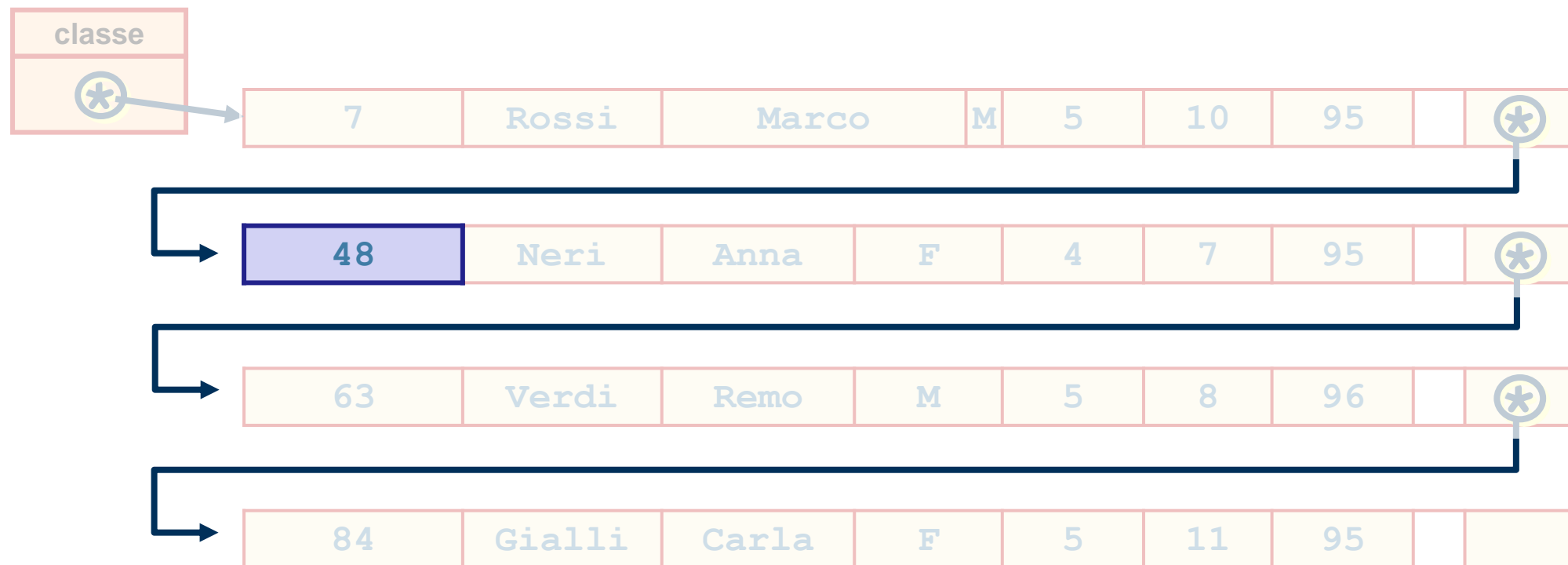
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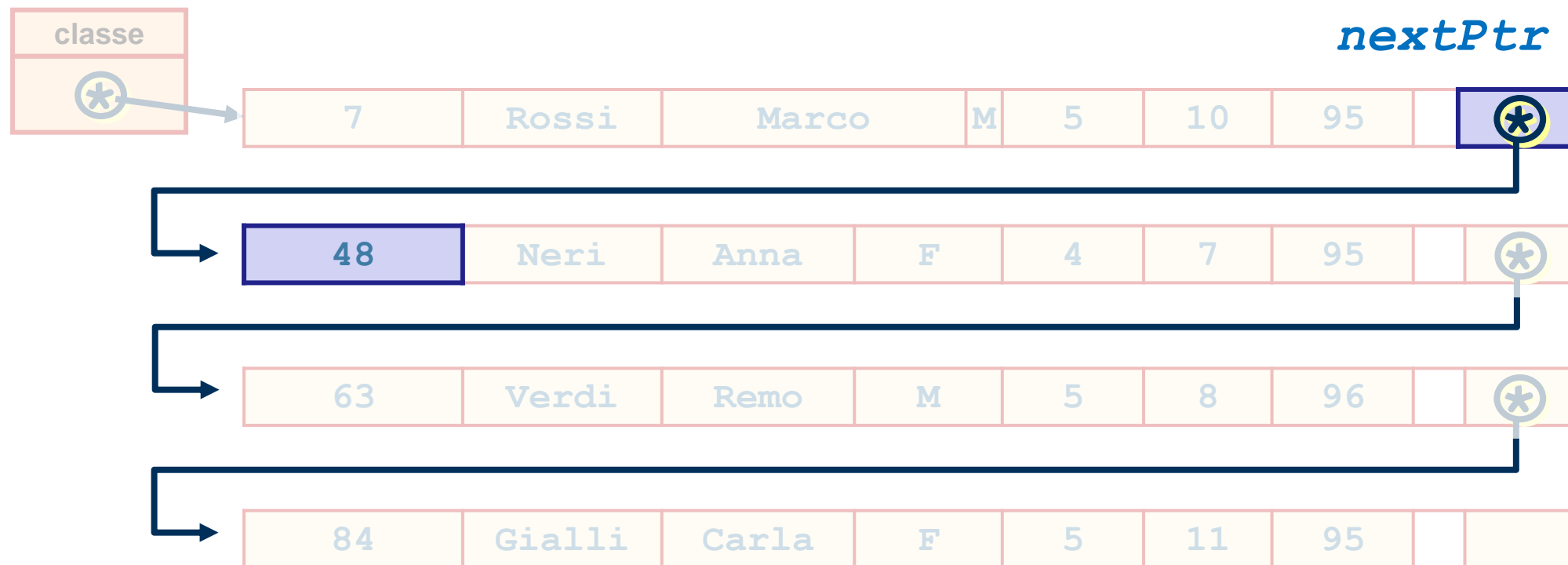
`classe -> datiStud .matricola`

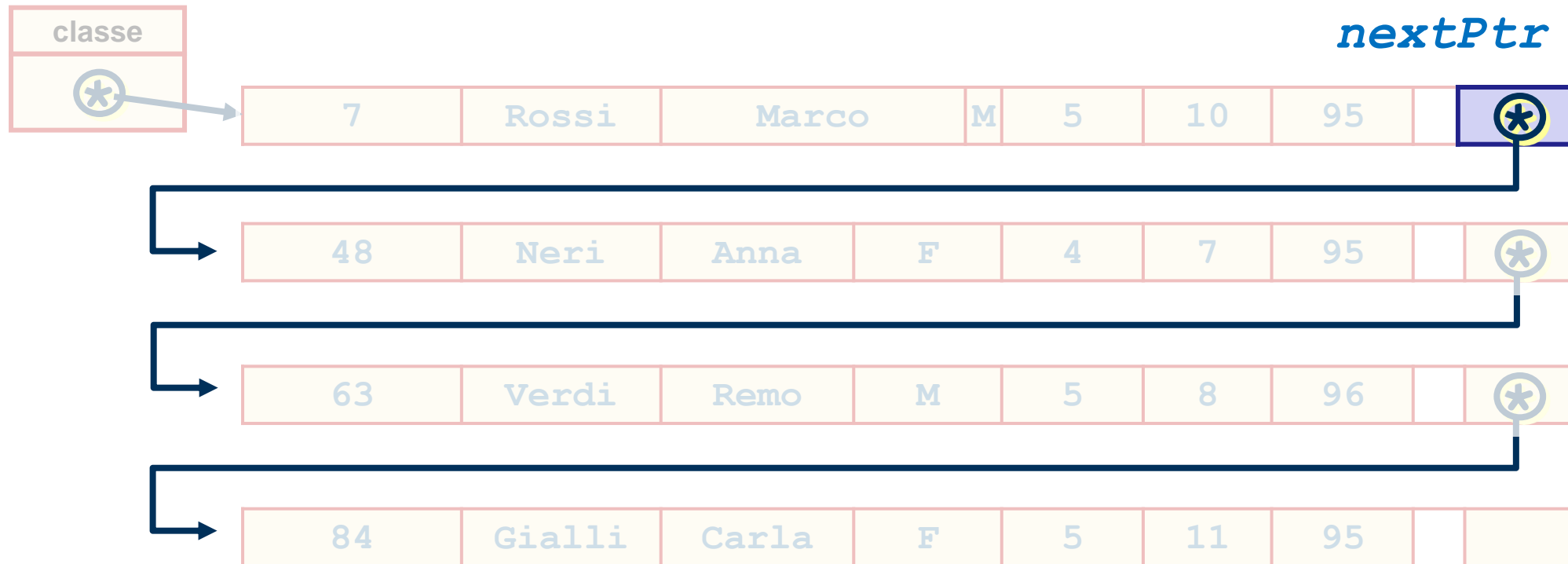


Un po' di pratica

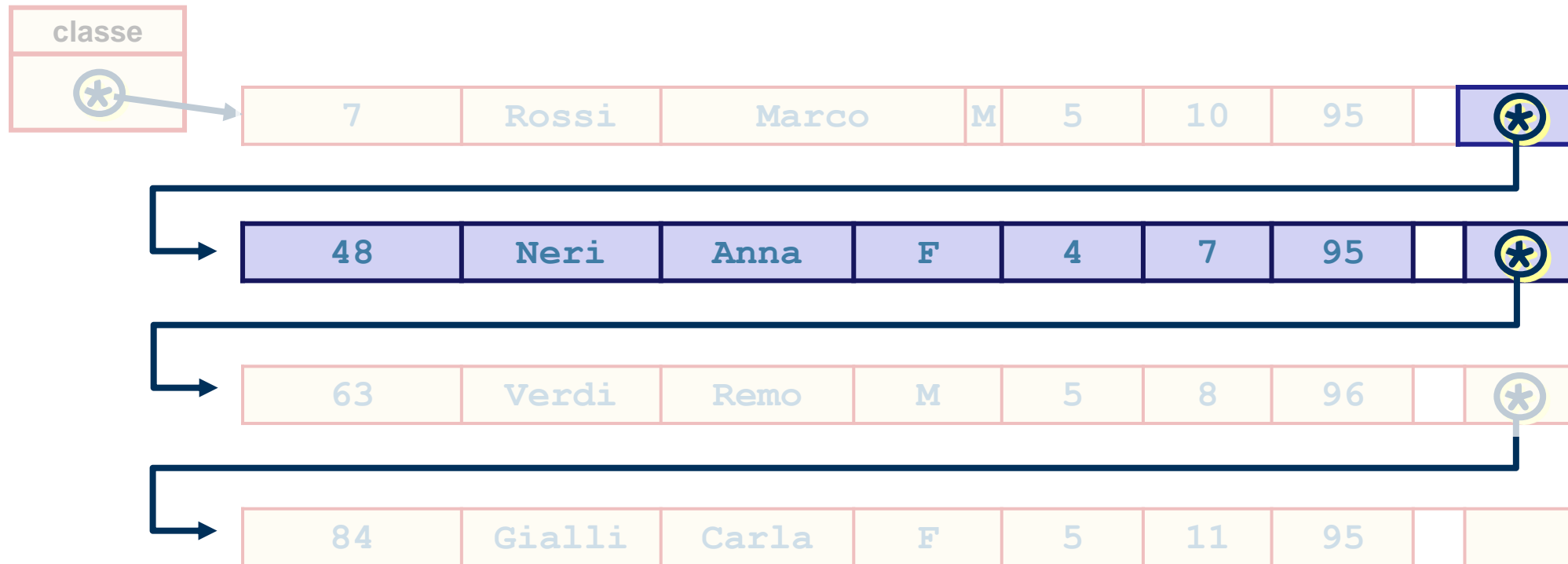




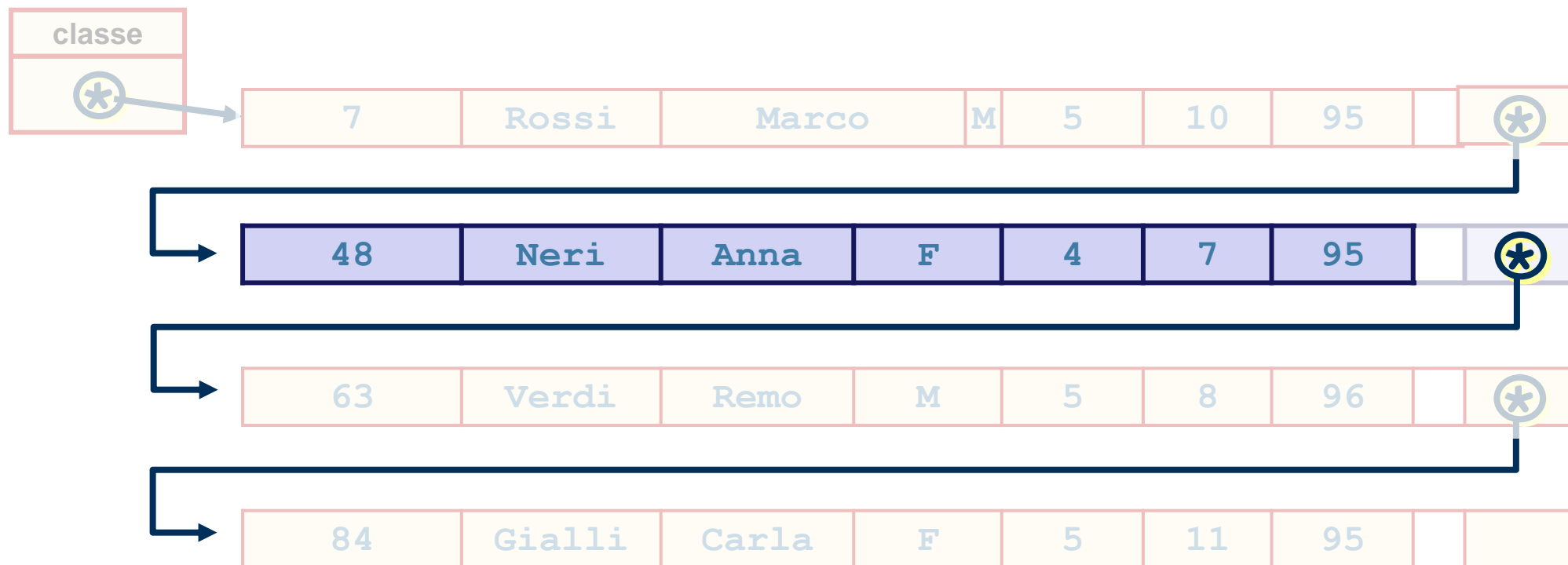




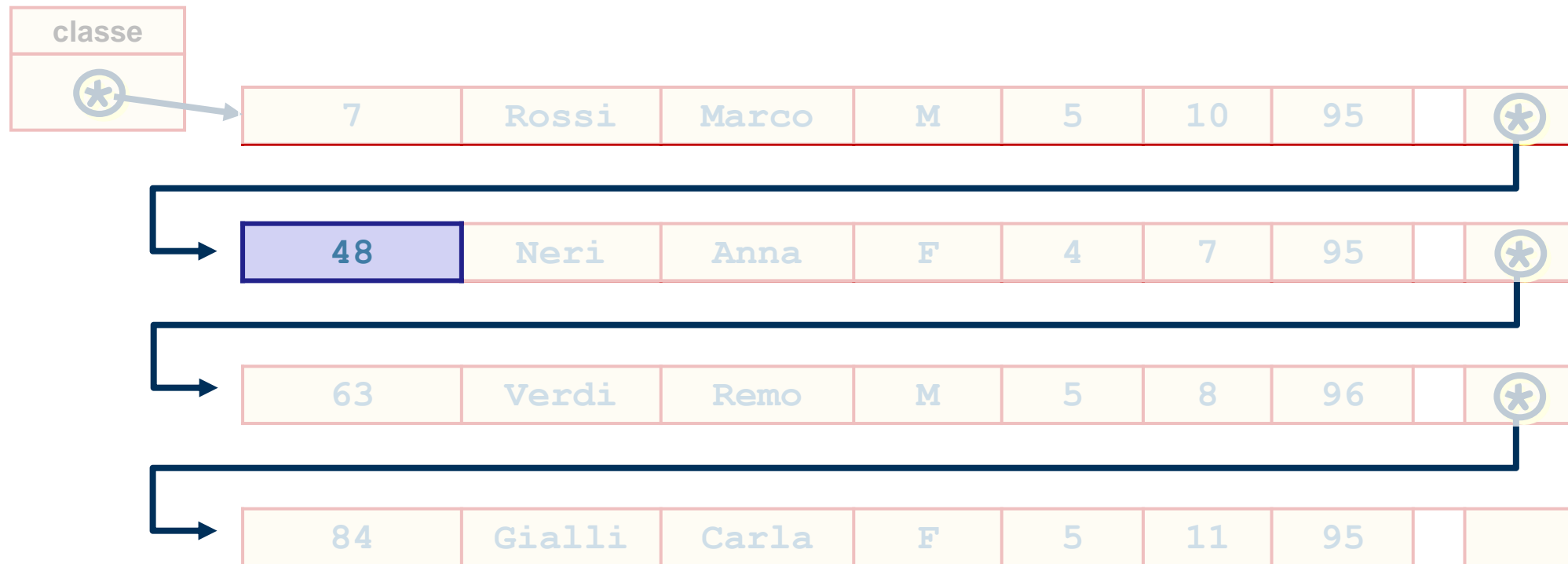
`classe -> nextPtr`



`classe -> nextPtr`

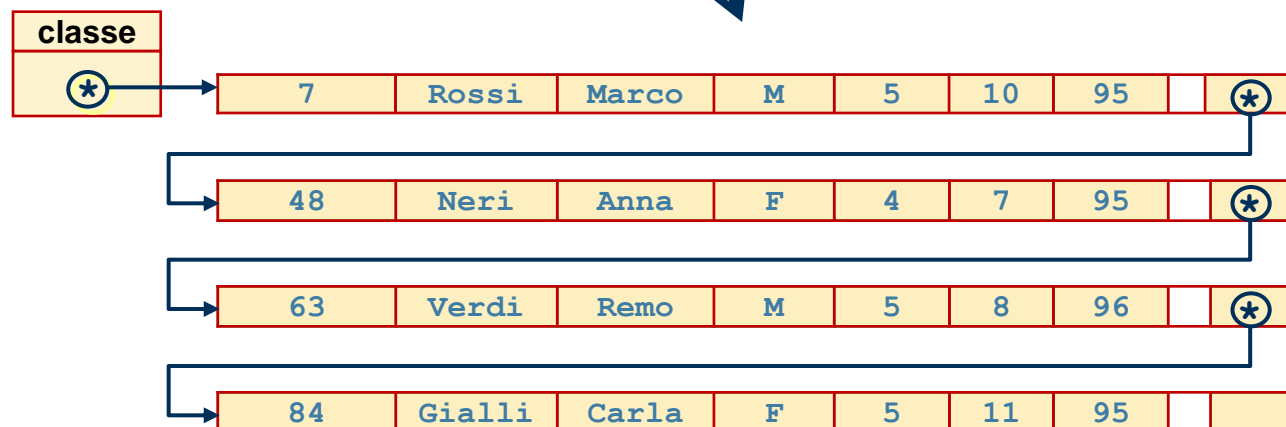


`classe -> nextPtr -> datiStud`



`classe -> nextPtr -> datiStud.matricola`

classe							
num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	meze	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

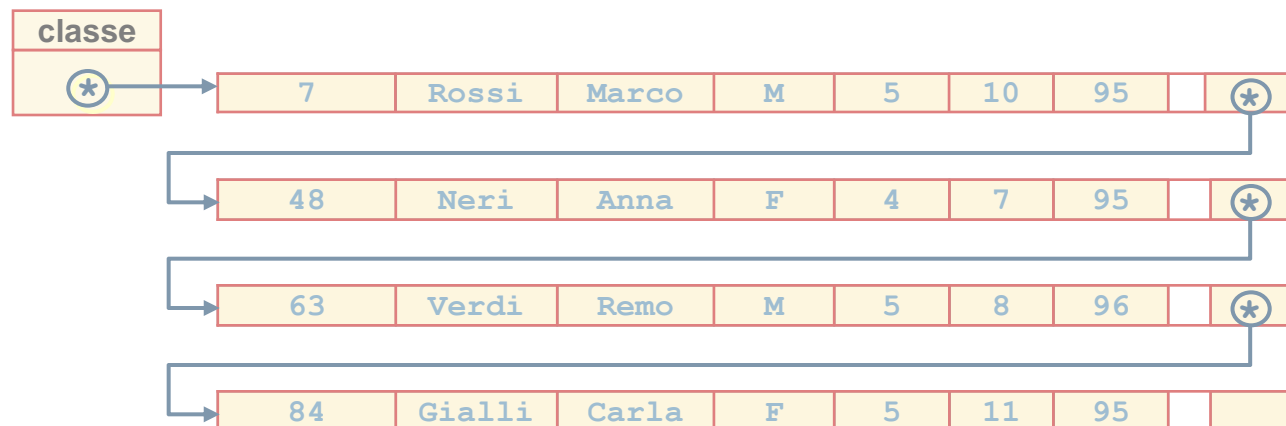




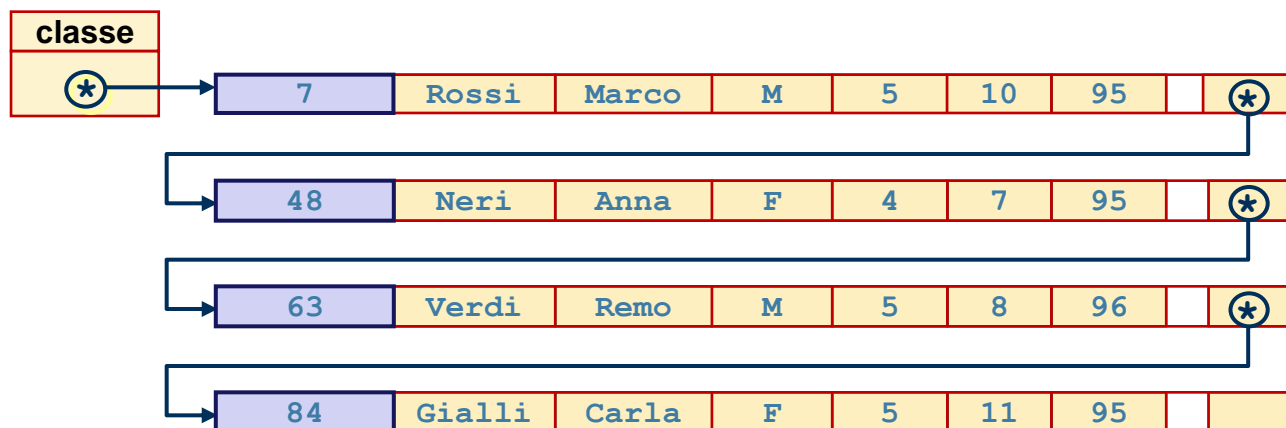
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num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	mese	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

Un array “magazzino”

elenco [DIM]

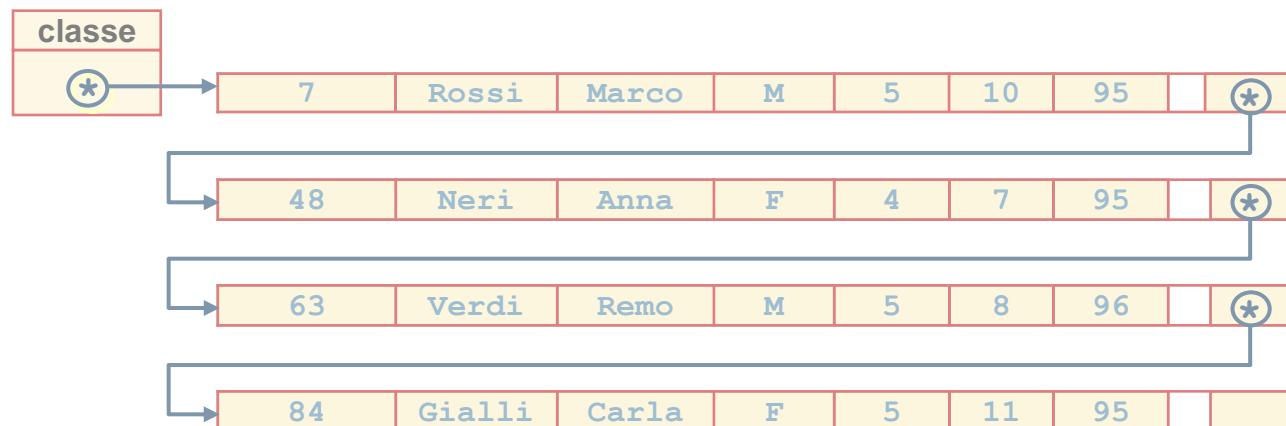


classe							
num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	mese	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							



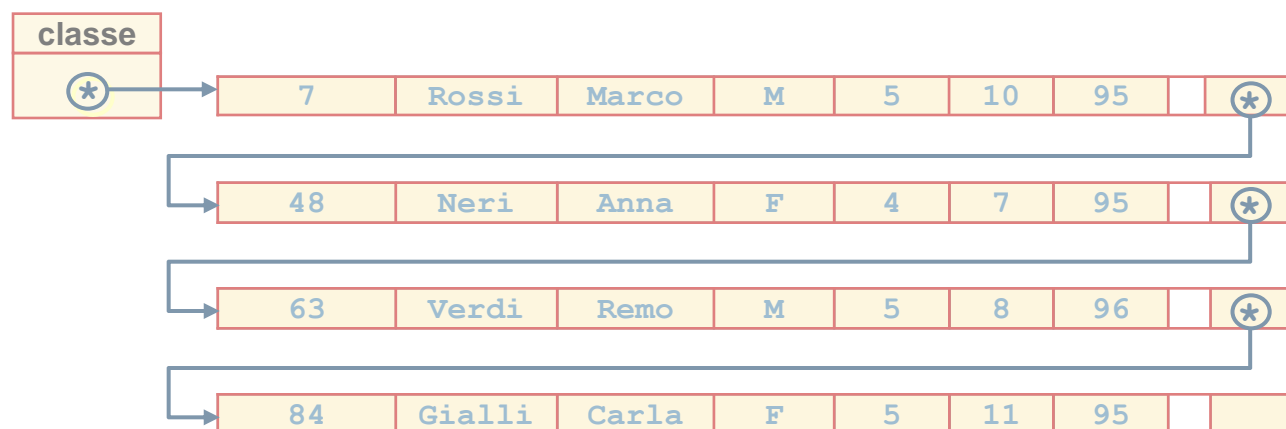
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num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	me	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

$\text{elenco}[i]$   
 $\downarrow$   
 $\text{elenco}[i+1]$

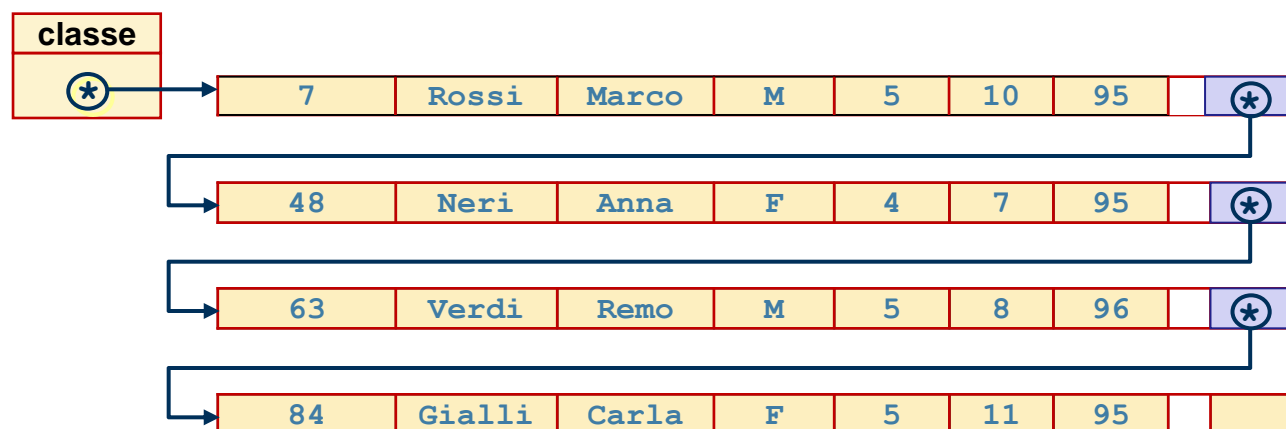


classe							
num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	me	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

pos



classe							
num	elenco						
4	matricola	cognome	nome	sesso	dataNascita		
					giorno	me	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

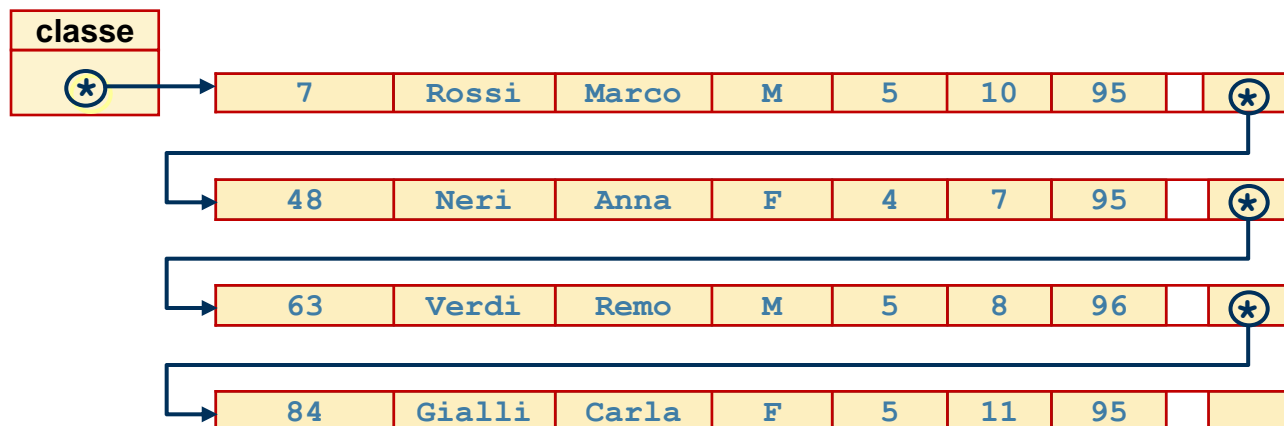


Nodo \*pos

classe							
num	elenco						
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					giorno	me	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

← Programma

- Inserimento
- Eliminazione
- Stampa



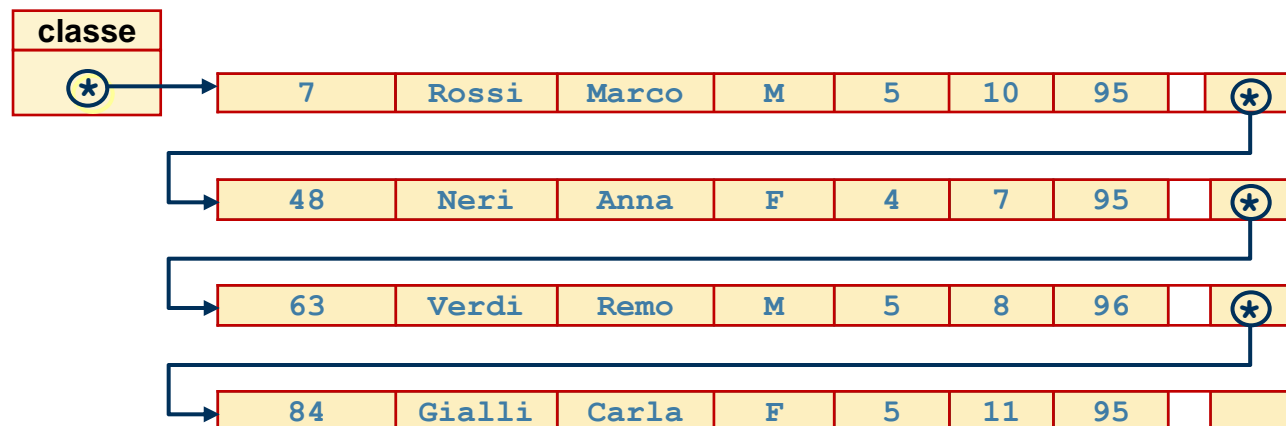
← Programma

- Inserimento
- Eliminazione
- Stampa

classe							
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					giorno	me	anno
0	7	Rossi	Marco	M	5	10	95
1	48	Neri	Anna	F	4	7	95
2	63	Verdi	Remo	M	5	8	96
3	84	Gialli	Carla	F	5	11	95
4							

Tabella non sequenziale

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