

IORDACHE MĂDĂLINA GABRIELA 318CA

Bonus: desen add-to-sorted-list

Desenați ce se întâmplă la rulare codului din slide-ul 15 dacă  $x$  este succesiv: 3, 15, 12, 1, 18.

```
Node *p = L;
```

```
while (p != NULL && p->info < x)  
    p = p->next;
```

```
if (p == NULL)  
    add-last(x);
```

```
else {  
    paux = malloc(sizeof(struct Node));
```

```
    paux->info = x;
```

```
    paux->next = p;
```

```
    paux->prev = p->prev;
```

```
    if (p->prev != NULL)
```

```
        p->prev->next = paux;
```

```
    else
```

```
        pfirst = paux;
```

```
    p->prev = paux;
```

```
}
```

La începutul algoritmului, lista este goală:  $L = \text{NULL}$

\*  $x = 3$

$P = L = \text{NULL} \Rightarrow \text{add\_last}(x)$ :  $\text{NULL} \leftarrow \boxed{\boxed{3}} \rightarrow \text{NULL}$

\*  $x = 15$

$L \neq \text{NULL}$  &  $3 < 15$

$P = P \rightarrow \text{next}$ ;

$P \neq \text{NULL} \Rightarrow \text{add\_last}(x)$ :  $\text{NULL} \leftarrow \boxed{\boxed{3}} \xrightarrow{\text{pfirst}} \boxed{\boxed{15}} \xrightarrow{\text{paux}} \text{NULL}$

\*  $x = 12$

$L \neq \text{NULL}$  &  $3 < 12$

$P = P \rightarrow \text{next}$ ;

$15 < 12$  (false)

$\text{NULL} \leftarrow \boxed{\boxed{3}} \xrightarrow{\text{pfirst}} \boxed{\boxed{12}} \xrightarrow{\text{paux}} \boxed{\boxed{15}} \rightarrow \text{NULL}$

\*  $x = 1$

$L \neq \text{NULL}$

$3 < 1$  (false)

$\text{NULL} \leftarrow \boxed{\boxed{1}} \xrightarrow{\text{pfirst}} \boxed{\boxed{3}} \xrightarrow{\text{paux}} \boxed{\boxed{12}} \xrightarrow{\text{paux}} \boxed{\boxed{15}} \rightarrow \text{NULL}$

\*  $x = 18$

$L \neq \text{NULL}$  &  $1 < 18$

$P = P \rightarrow \text{next}$ ;

$3 < 18$ ,  $P = P \rightarrow \text{next}$ ;

$12 < 18$ ,  $P = P \rightarrow \text{next}$ ;

$15 < 18$ ,  $P = P \rightarrow \text{next}$ ;

$P = \text{NULL}$

$\text{NULL} \leftarrow \boxed{\boxed{1}} \xrightarrow{\text{pfirst}} \boxed{\boxed{3}} \xrightarrow{\text{paux}} \boxed{\boxed{12}} \xrightarrow{\text{paux}} \boxed{\boxed{15}} \xrightarrow{\text{paux}} \boxed{\boxed{18}} \rightarrow \text{NULL}$