# TP3 Pointeurs

## (Solution Ex 3.2
## Séparation Négatifs/Positifs)

### Partie 1 – Solution avec notation indicée [ ]

# Phase 1

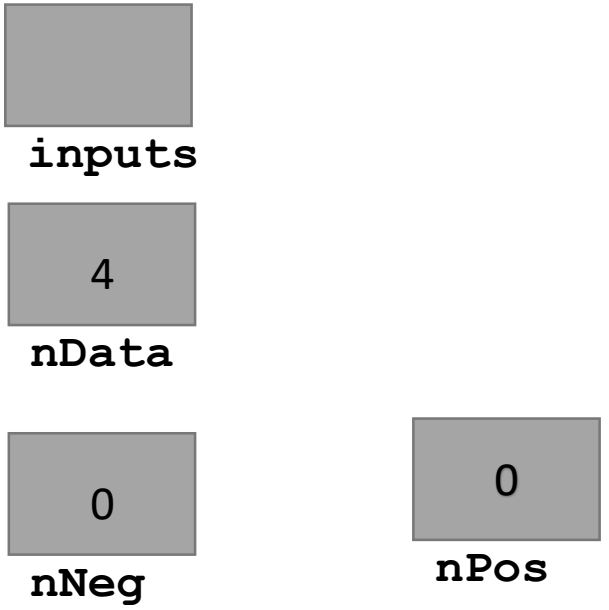
# Remplissage tableau et comptage

# Allocation tableau inputs

```
int nData, nPos = 0, nNeg = 0;
int *inputs, *positives, *negatives;

printf("Entrez le nombre de donnees (0 pour terminer): ");
scanf("%d", &nData);

while (nData>0) {
   inputs = malloc(nData * sizeof(int));
   if (inputs == NULL) {
      perror("Out of memory\n");
      exit(EXIT_FAILURE);
   }
   ...
```



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      perror("Out of memory\n");
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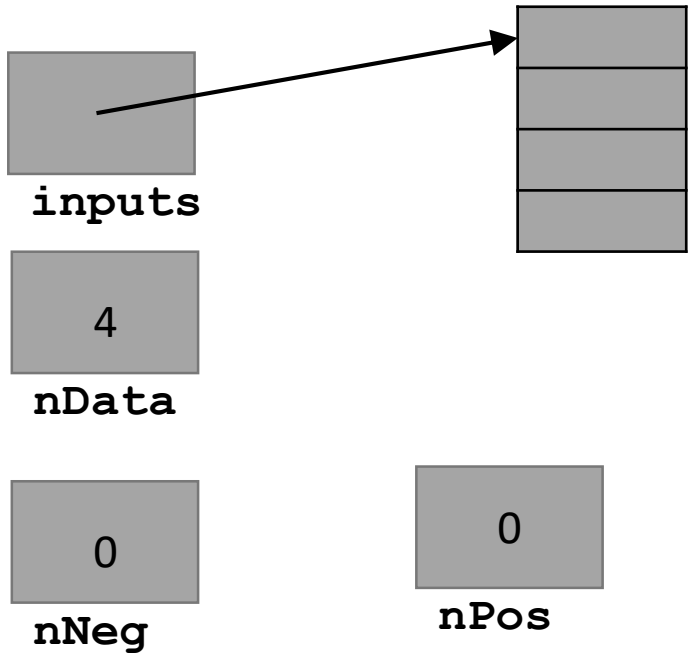
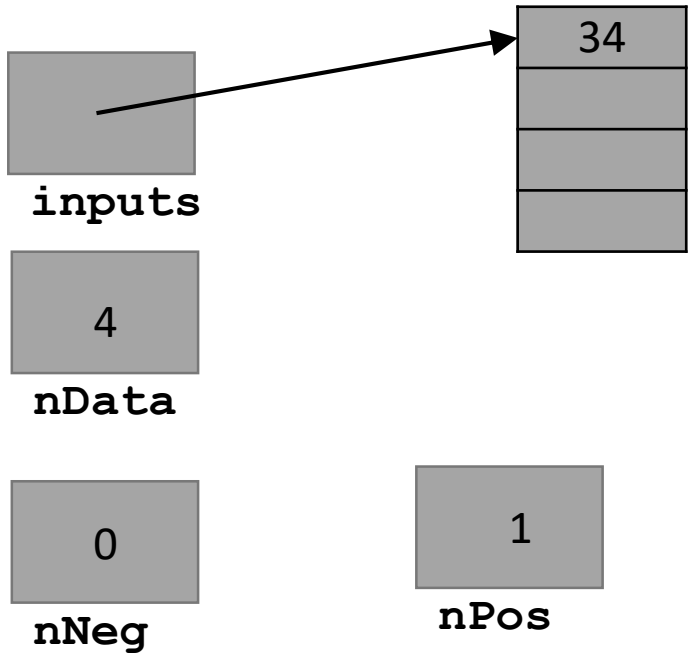
   }
   ...
```



# Remplissage tableau et comptage

```
int nData, nPos = 0, nNeg = 0;
int *inputs, *positives, *negatives;

while (nData>0) {
   ...
   // Read inputs and counts neg and pos
   printf("Entrez les donnees:\n");
   for (int i=0; i<nData; i++) {
      scanf("%d", &(inputs[i]));
      if (inputs[i]>=0)
         nPos++;
      else
         nNeg++;
   }
   ...
```



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      else
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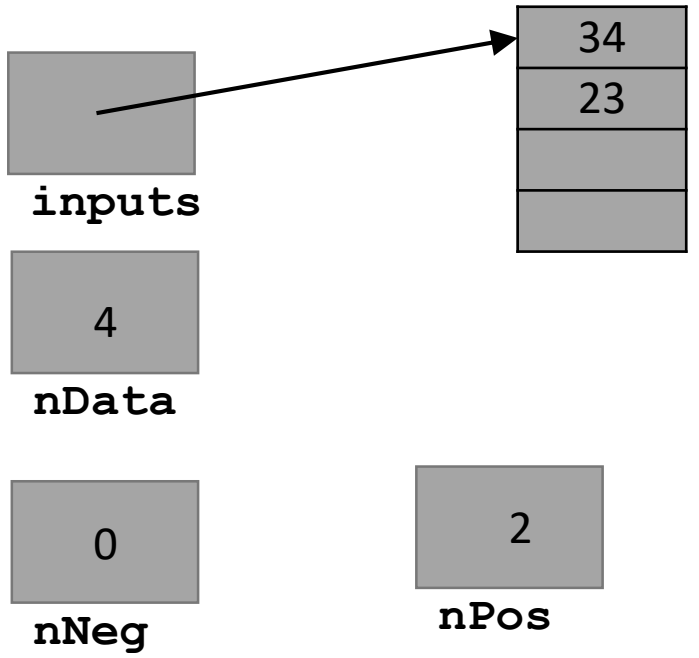
   }
   ...
```



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   // Read inputs and counts neg and pos
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   for (int i=0; i<nData; i++) {
      scanf("%d", &(inputs[i]));
      if (inputs[i]>=0)
         nPos++;
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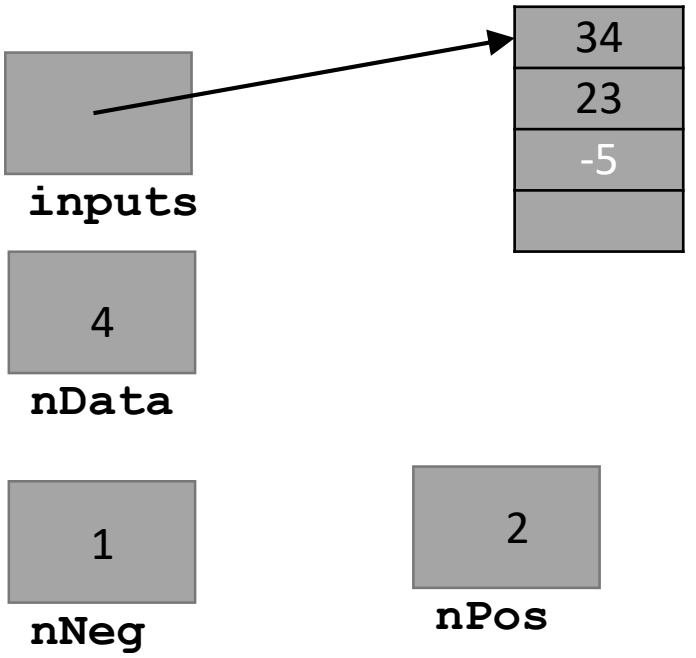
   }
   ...
```



# Remplissage tableau et comptage

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   // Read inputs and counts neg and pos
   printf("Entrez les donnees:\n");
   for (int i=0; i<nData; i++) {
      scanf("%d", &(inputs[i]));
      if (inputs[i]>=0)
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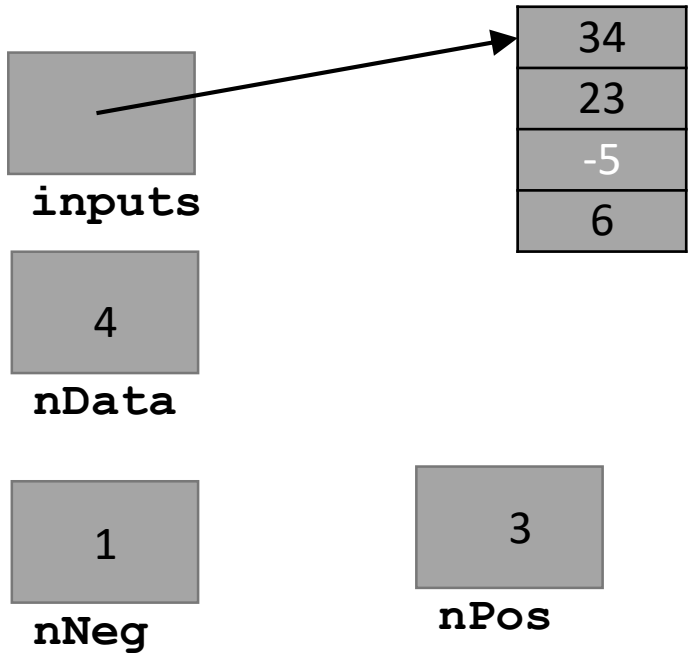
         nNeg++;
   }
   ...
```



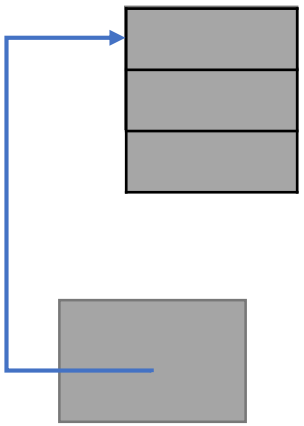
# Phase 2

# Remplissage tableaux négatifs et positifs

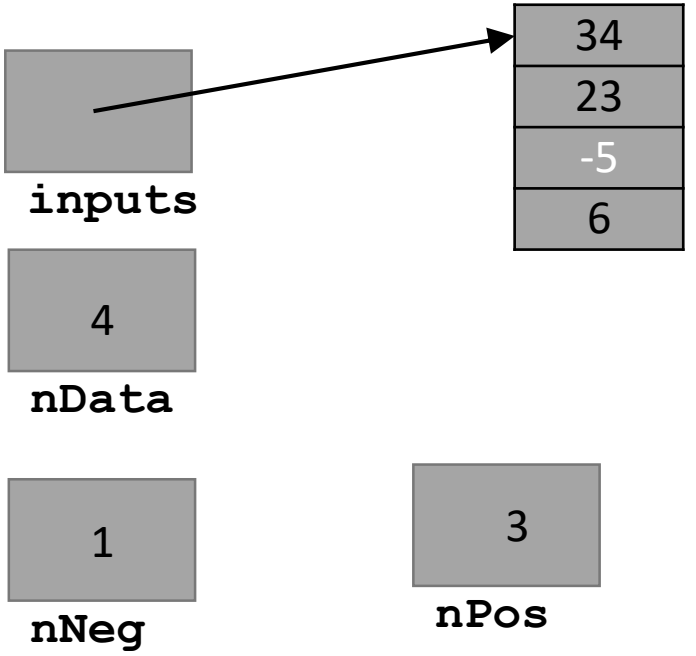
# Allocation tableaux pos et neg

```
int nData, nPos = 0, nNeg = 0;
int *inputs, *positives, *negatives;

while (nData>0) {
   ...
   positives = malloc(nPos * sizeof(int));
   if (positives == NULL) {
      perror("Out of memory\n");
      exit(EXIT_FAILURE);
   }
   ...
```



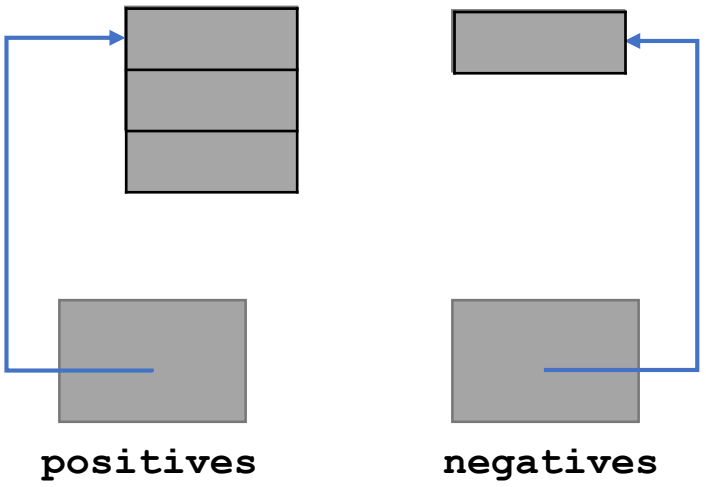
**positives**

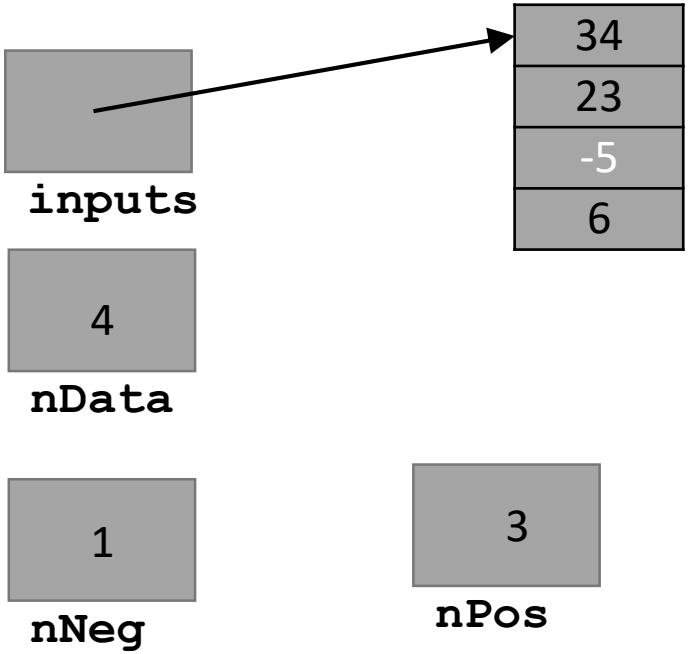


# Allocation tableaux pos et neg

```
int nData, nPos = 0, nNeg = 0;
int *inputs, *positives, *negatives;

while (nData>0) {
   ...
   negatives = malloc(nNeg * sizeof(int));
   if (negatives == NULL) {
      perror("Out of memory\n");
      exit(EXIT_FAILURE);
   }
   ...
```

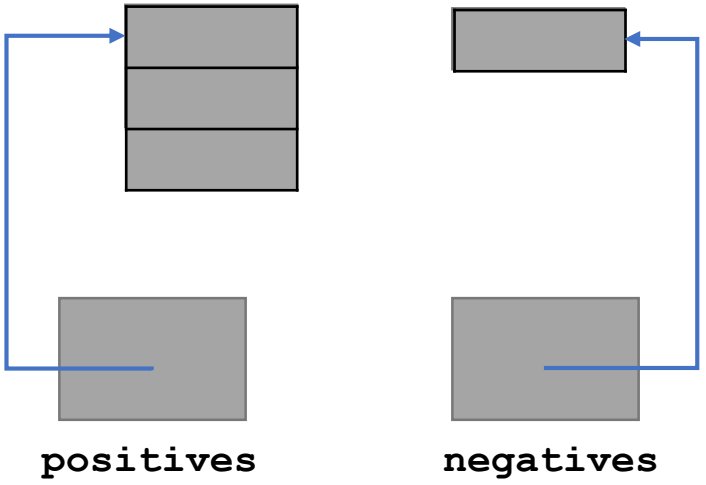


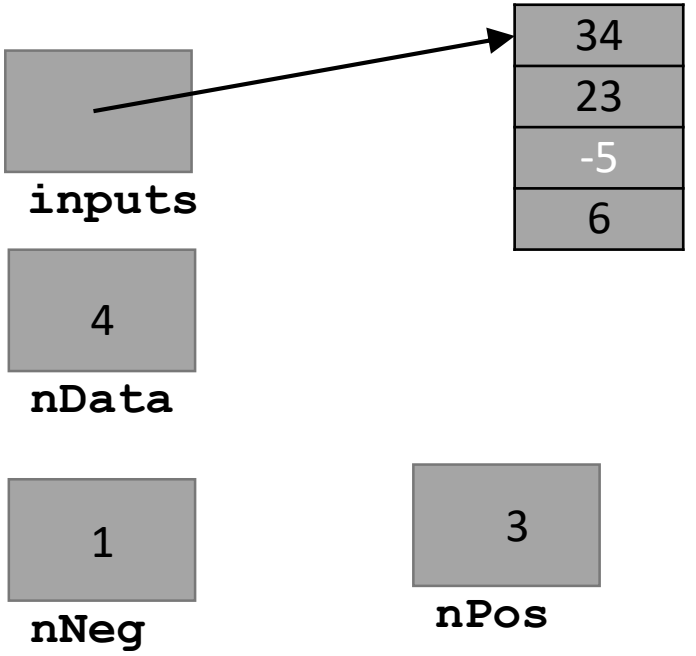



# Remplissage tableaux négatifs et positifs

```
int nData, nPos = 0, nNeg = 0;
int *inputs, *positives, *negatives;

while (nData>0) {
   ...
   // Fill pos and neg arrays
   nPos = nNeg = 0;
   for (int i=0; i<nData; i++) {
      if (inputs[i]>=0) {
         positives[nPos] = inputs[i];
         nPos++;
      } else ...
```



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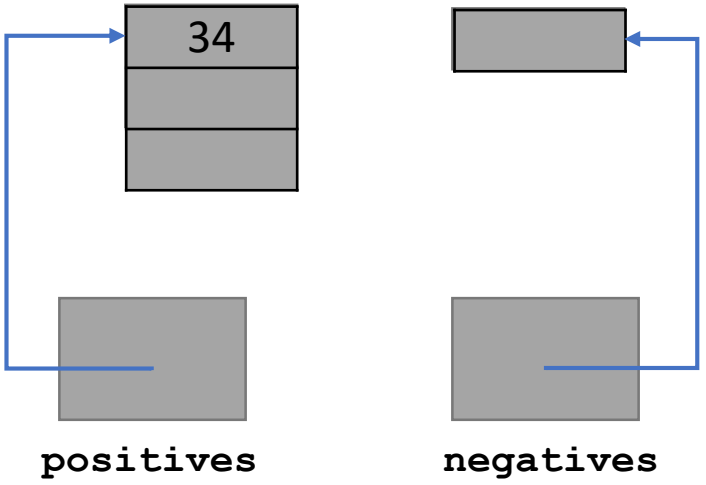
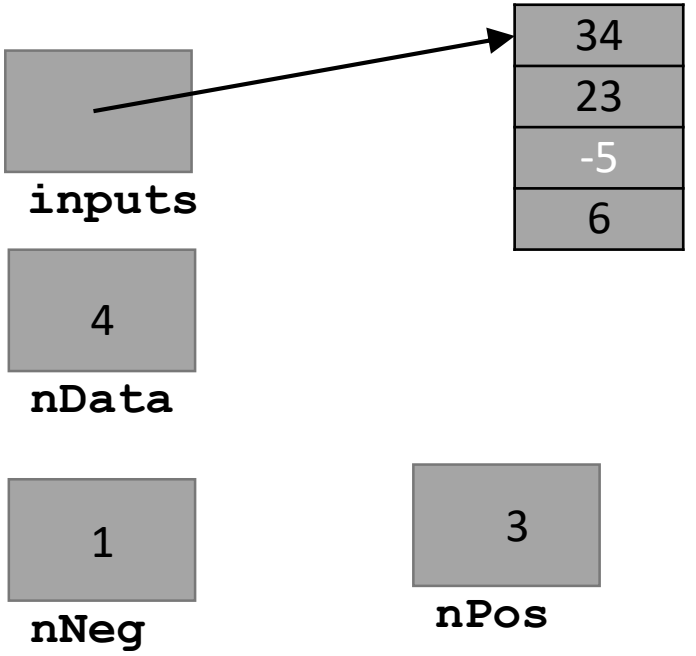
   // Fill pos and neg arrays
   nPos = nNeg = 0;
   for (int i=0; i<nData; i++) {
      if (inputs[i]>=0) {
         positives[nPos] = inputs[i];
         nPos++;
      } else ...
```



# Remplissage tableaux négatifs et positifs

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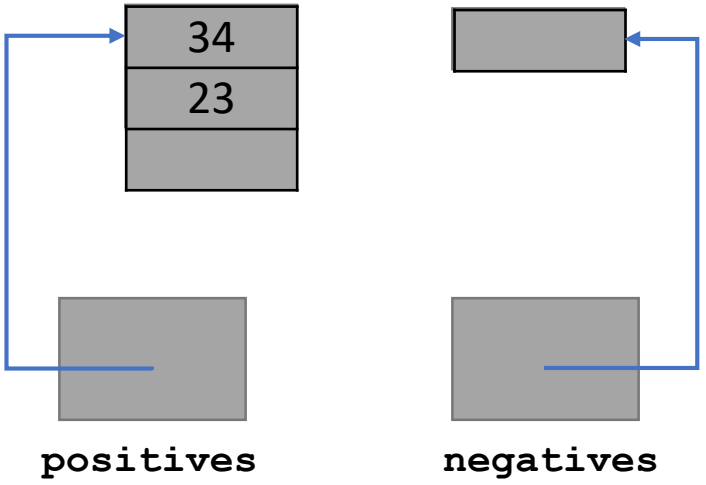
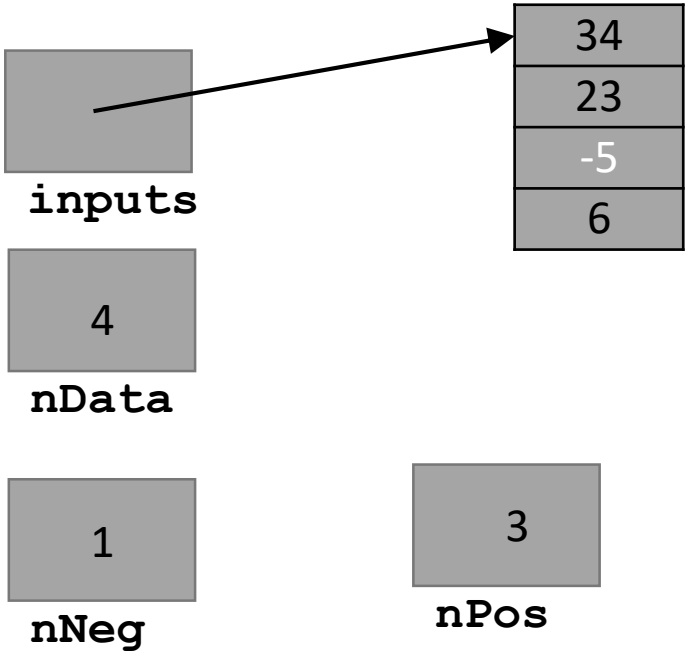
int *inputs, *positives, *negatives;

while (nData>0) {
   ...
   // Fill pos and neg arrays
   nPos = nNeg = 0;
   for (int i=0; i<nData; i++) {
      if (inputs[i]>=0) {
         positives[nPos] = inputs[i];
         nPos++;
      } else ...
```

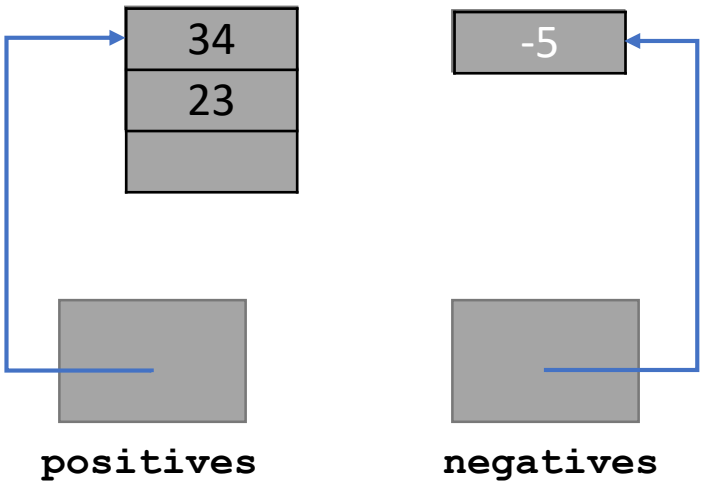


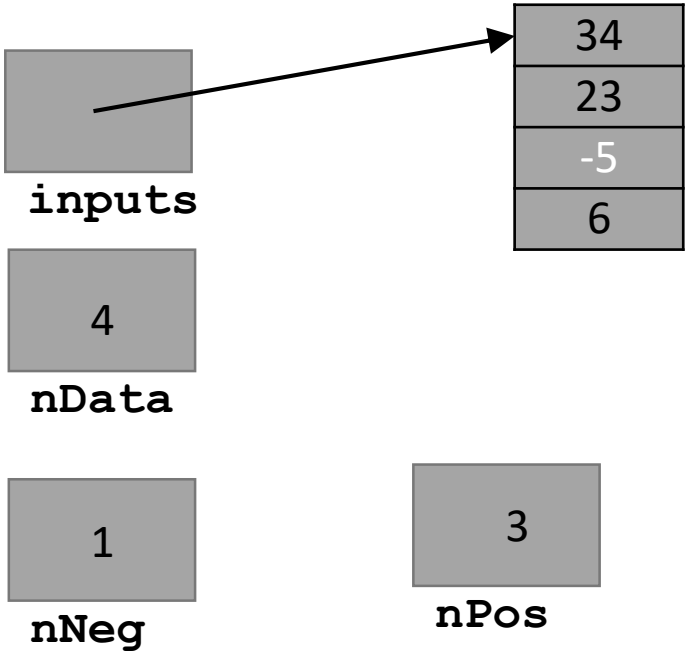



# Remplissage tableaux négatifs et positifs

```
int nData, nPos = 0, nNeg = 0;
int *inputs, *positives, *negatives;

while (nData>0) {
   ...
   // Fill pos and neg arrays
   nPos = nNeg = 0;
   for (int i=0; i<nData; i++) {
      if (inputs[i]>=0) {
         positives[nPos] = inputs[i];
         nPos++;
      } else ...
```



# Remplissage tableaux négatifs et positifs

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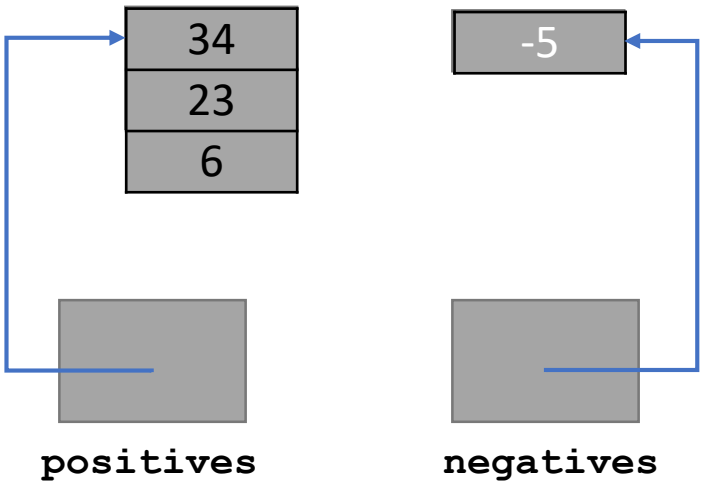
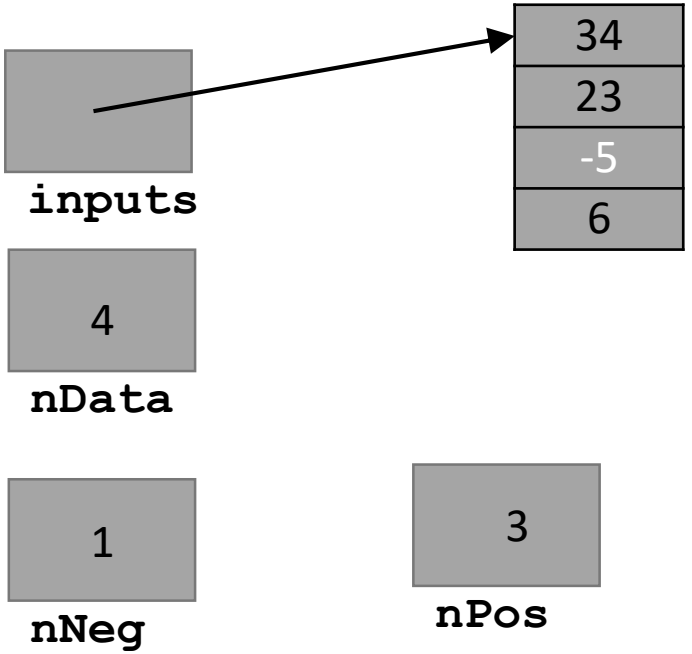
int nData, nPos = 0, nNeg = 0;
int *inputs, *positives, *negatives;

while (nData>0) {
   ...
   // Fill pos and neg arrays
   nPos = nNeg = 0;
   for (int i=0; i<nData; i++) {
      if (inputs[i]>=0) {
         positives[nPos] = inputs[i];
         nPos++;
      } else ...
```



# Phase 3

# Affichage résultats

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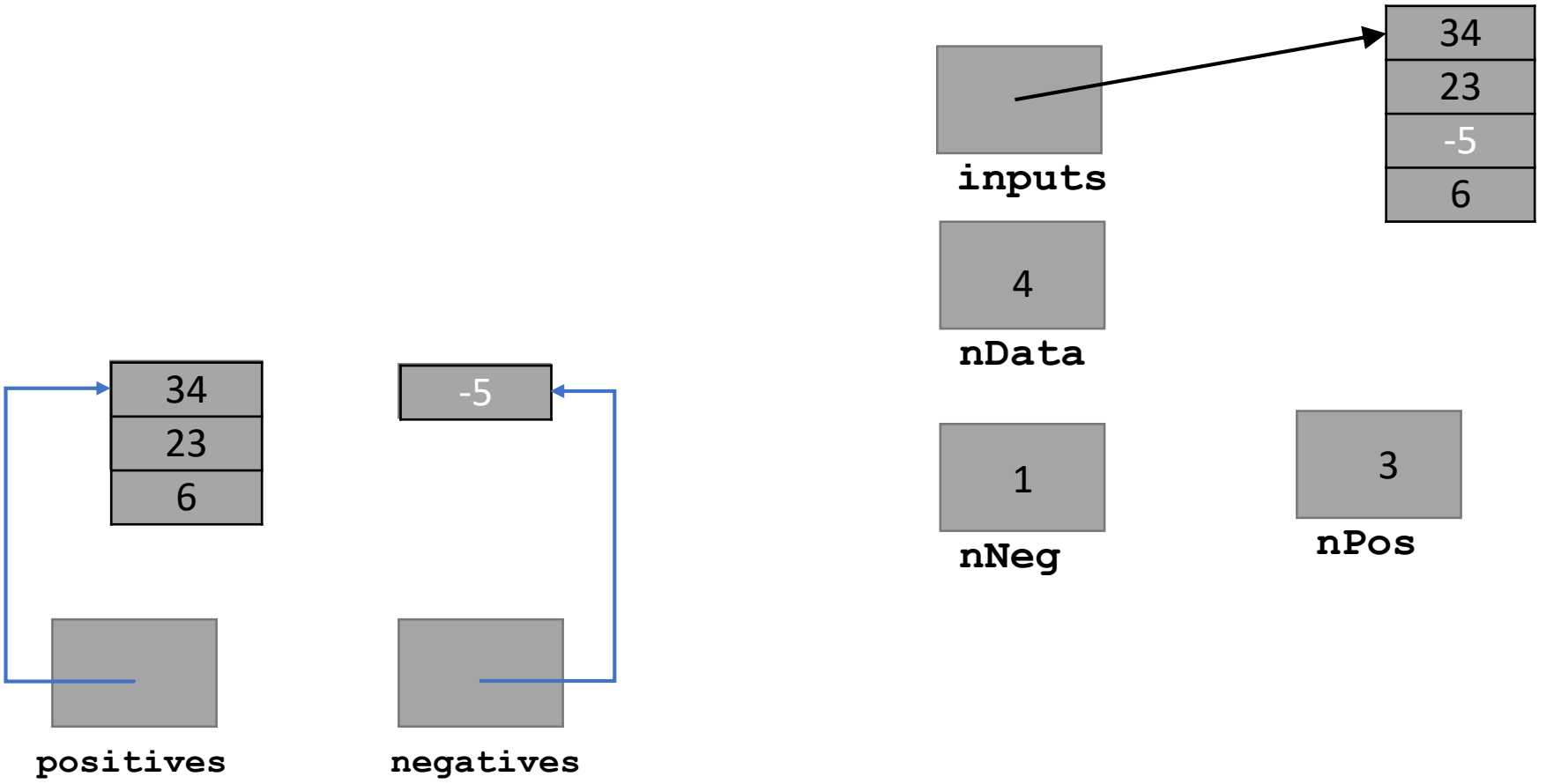
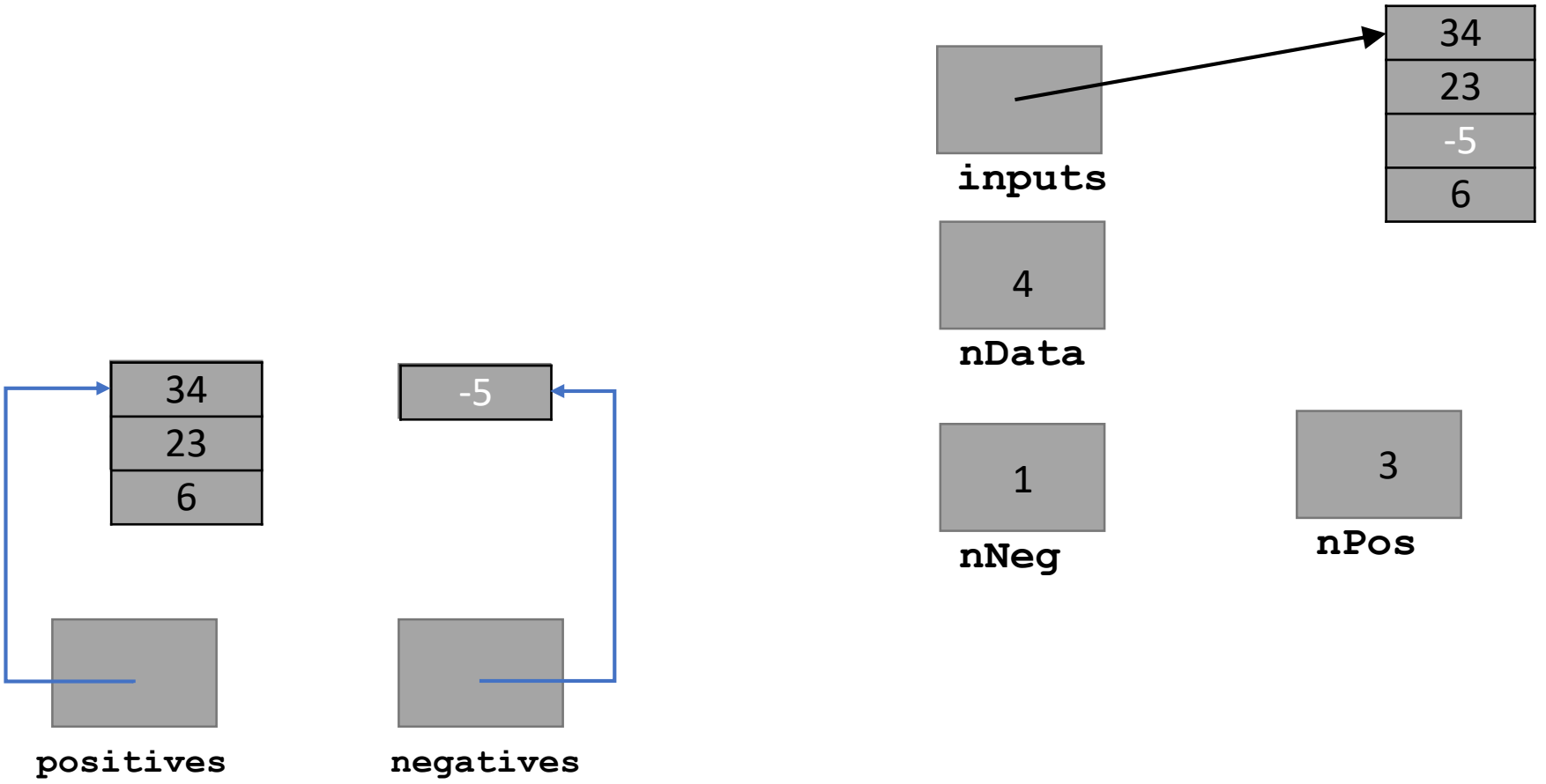
```
for (int i=0; i<nPos; i++)
        printf("%d ", positives[i]);
```



# Affichage résultats

```
for (int i=0; i<nNeg; i++)
        printf("%d ", negatives[i]);
```



# Phase 4

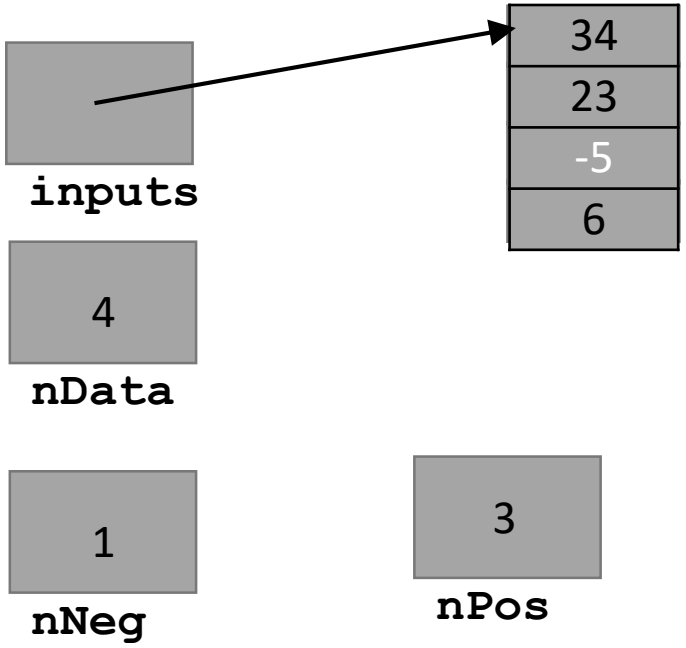
# Libérations tableaux

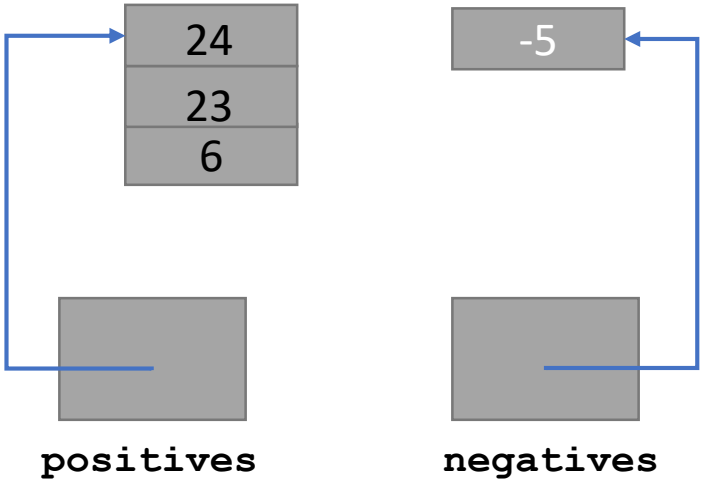
# Libérations tableaux

```
int nData, nPos = 0, nNeg = 0;
int *inputs, *positives, *negatives;

while (nData>0) {
      printf("Entrez le nombre de donnees (0 pour terminer): ");
      scanf("%d", &nData);
      inputs = malloc(nData * sizeof(int));
      if (inputs == NULL) {
         perror("Out of memory\n");
         exit(EXIT_FAILURE);
      }
      ...
```

Boucle englobante :
nouveau tableau à chaque itération



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while (nData>0) {
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      inputs = malloc(nData * sizeof(int));
      if (inputs == NULL) {
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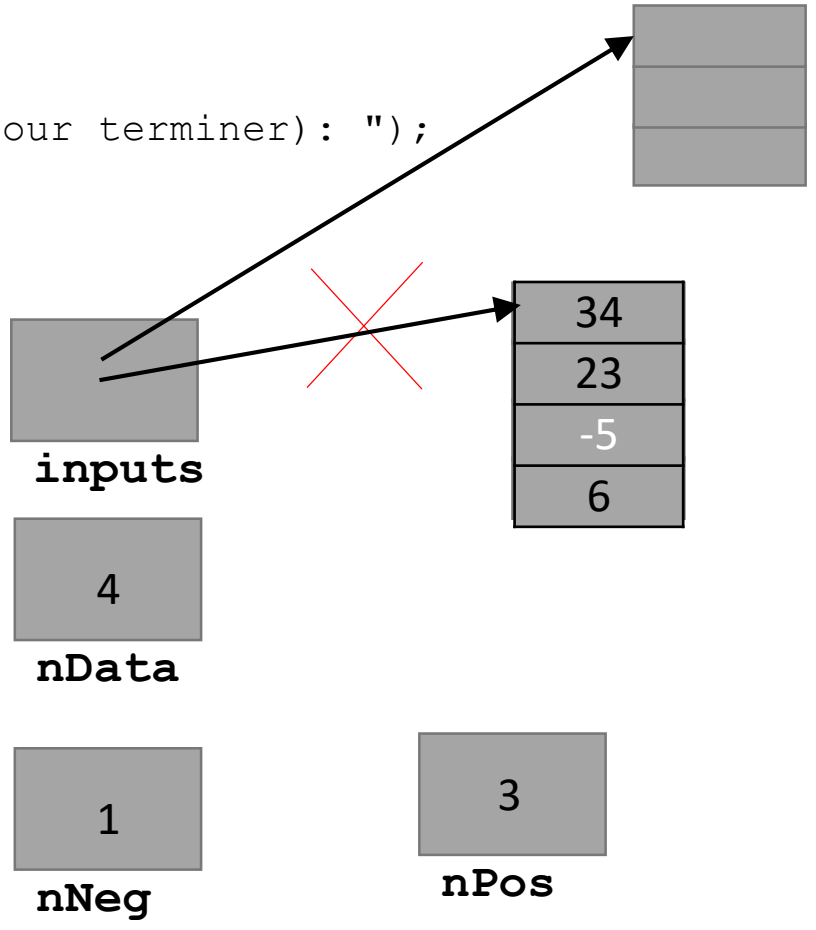
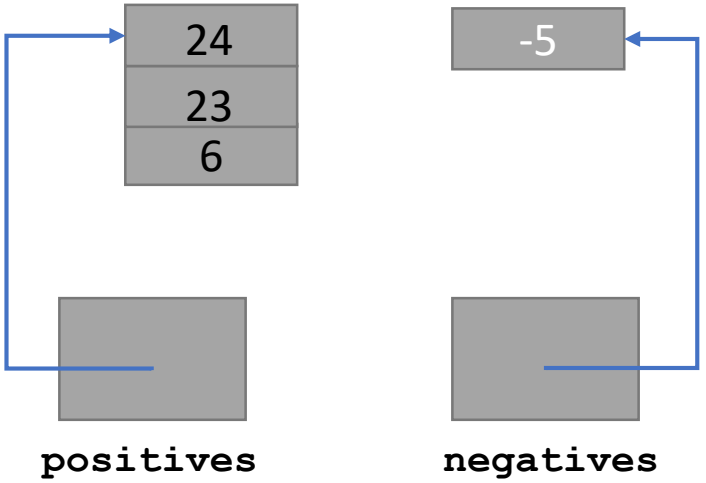
      }
      ...
```



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      scanf("%d", &nData);
      inputs = malloc(nData * sizeof(int));
      if (inputs == NULL) {
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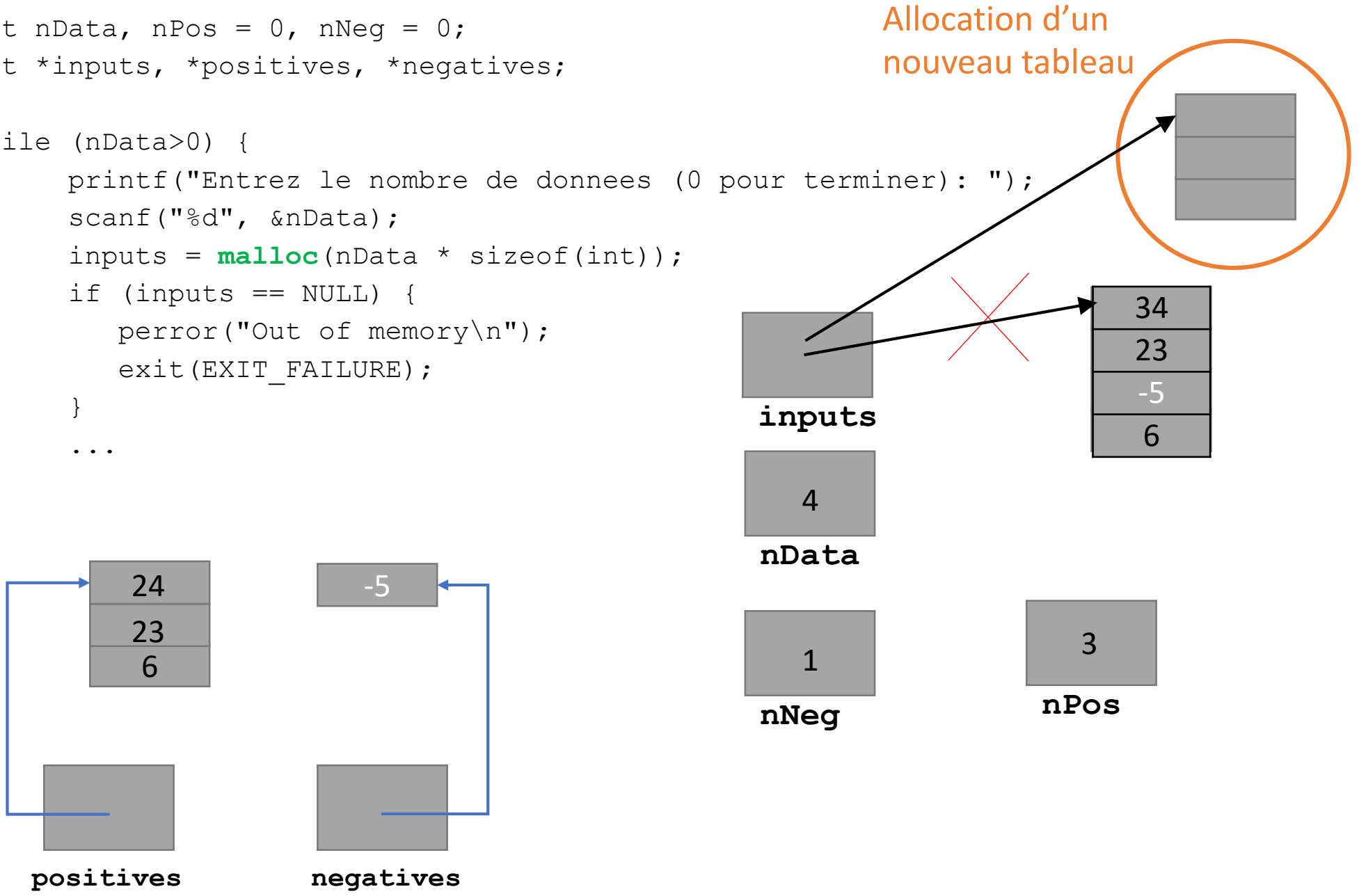
      }
      ...
```



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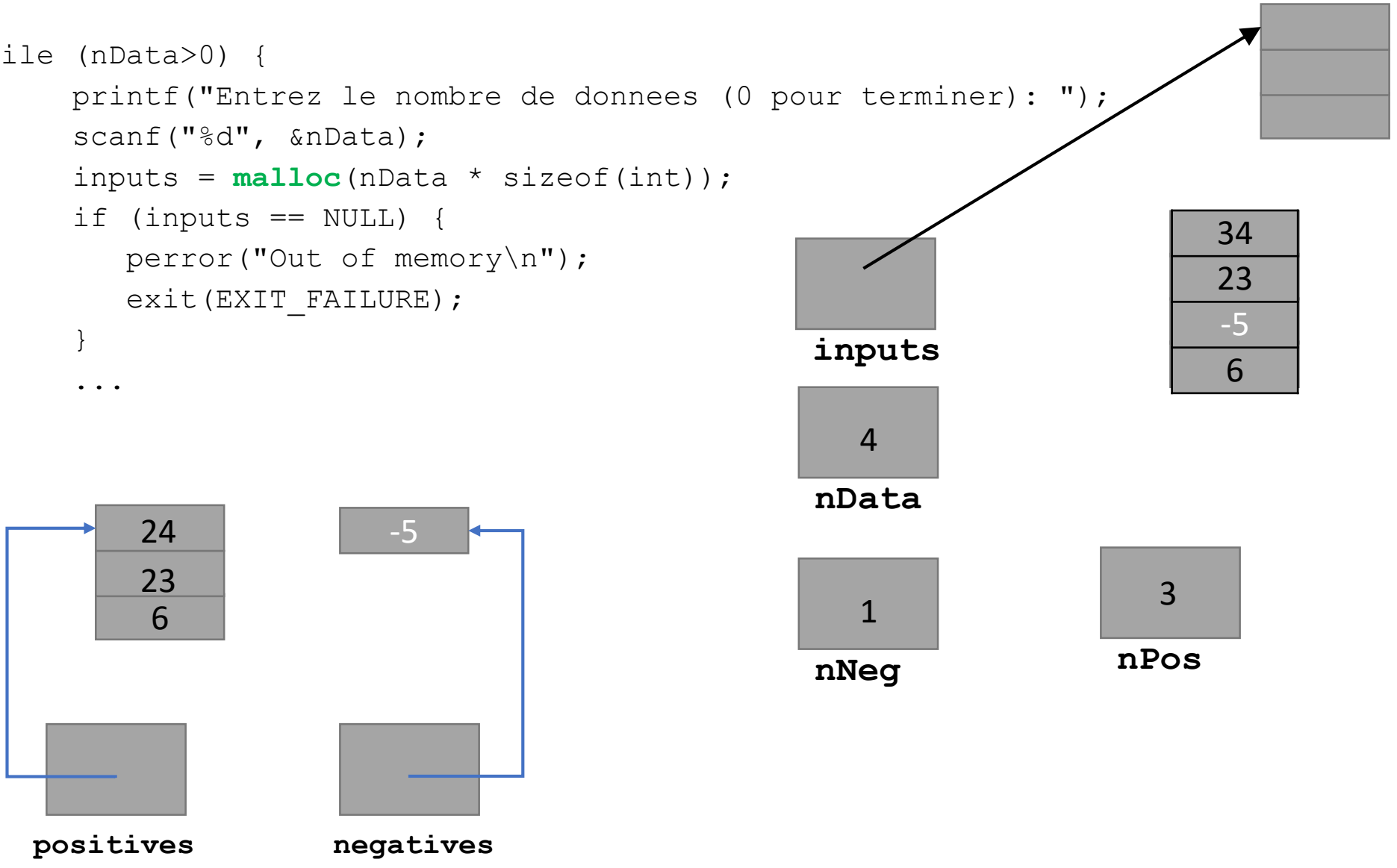


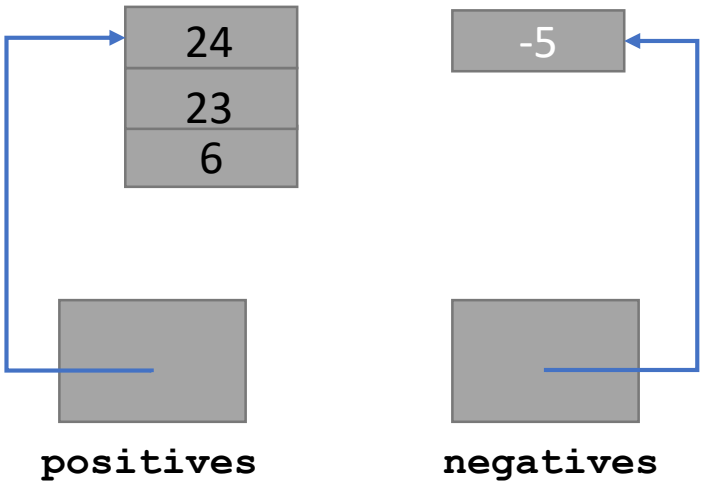
# Libérations tableaux

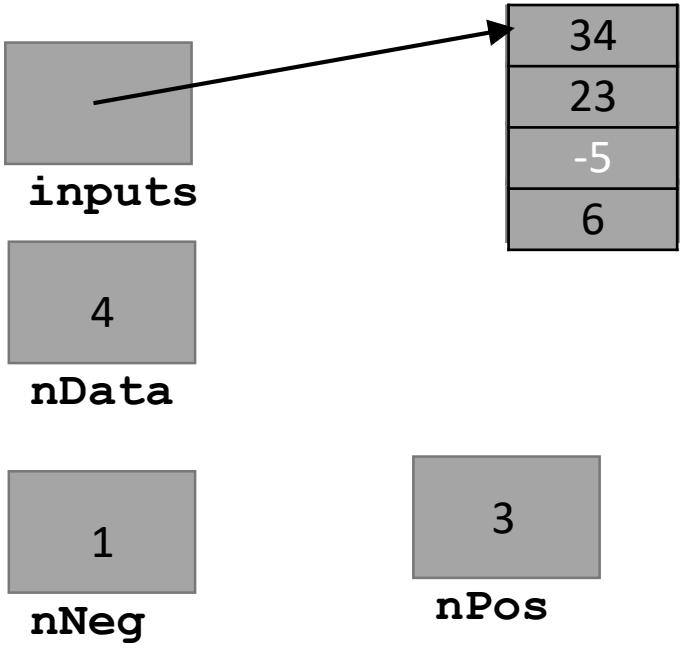
```
int nData, nPos = 0, nNeg = 0;
int *inputs, *positives, *negatives;

while (nData>0) {

      ...

      // Free dynamic memory
      free(inputs);
      free(negatives);
      free(positives);
}
```



# Libérations tableaux

```
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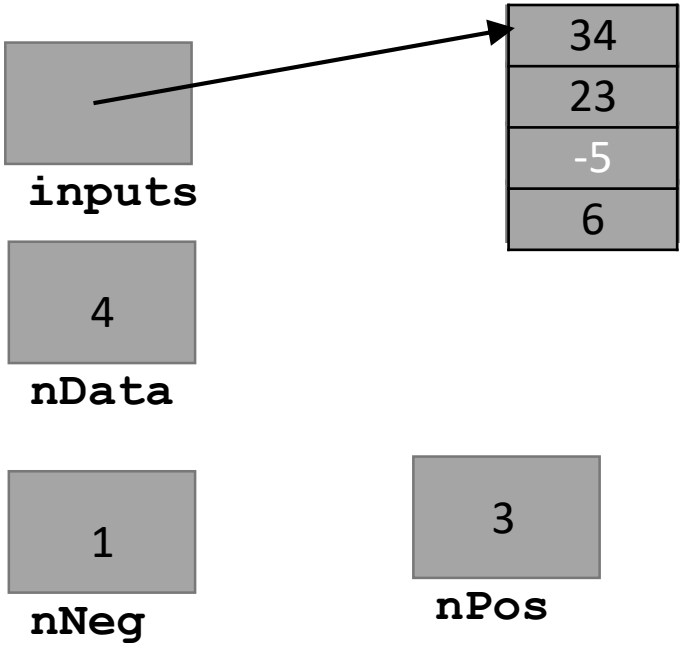
int *inputs, *positives, *negatives;

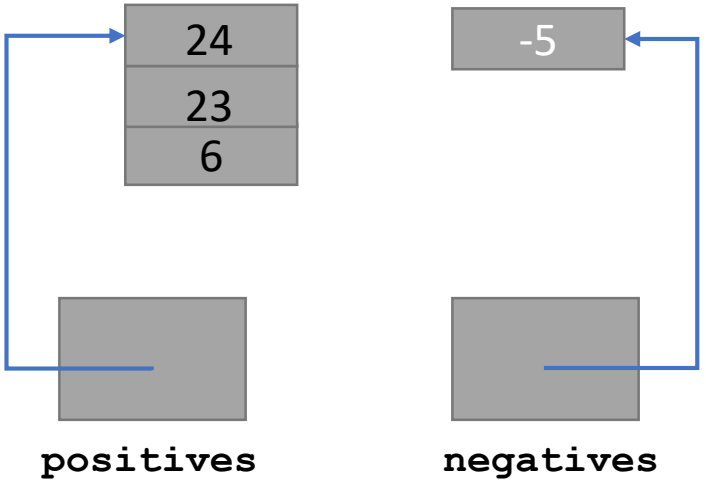
while (nData>0) {

      ...

      // Free dynamic memory
      free(inputs);
      free(negatives);
      free(positives);
}
```

Libération des zones de mémoire dynamique



# Libérations tableaux

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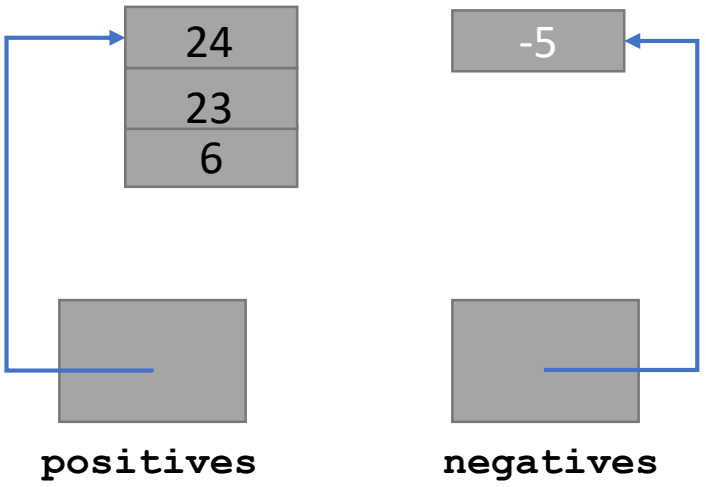
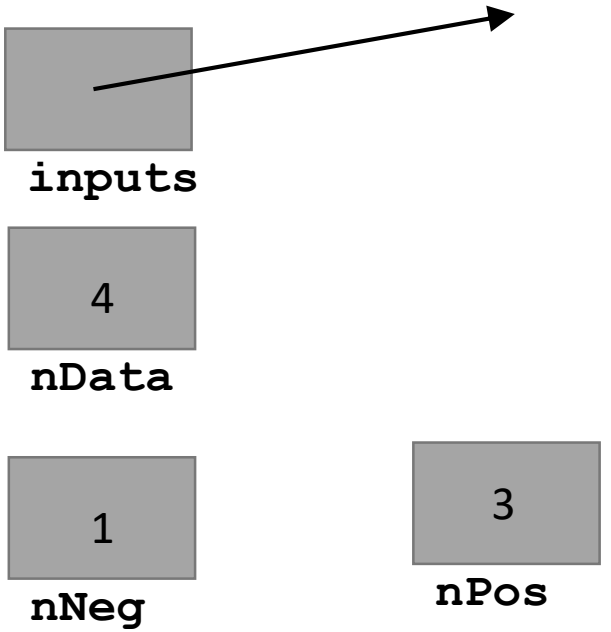
while (nData>0) {

      ...

      // Free dynamic memory
      free(inputs);
      free(negatives);
      free(positives);
}
```



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      ...

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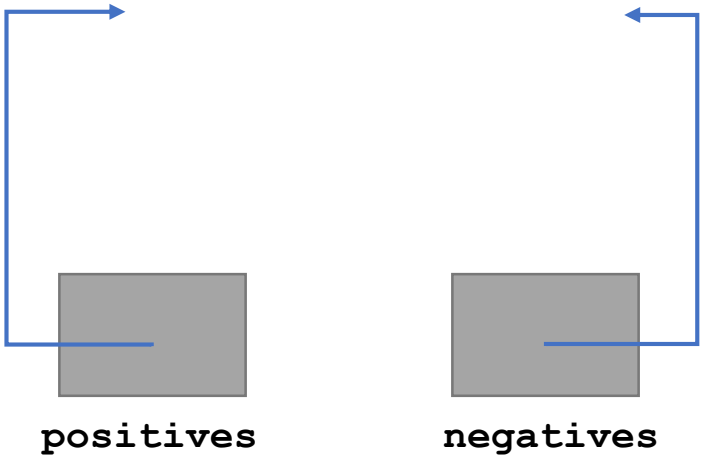
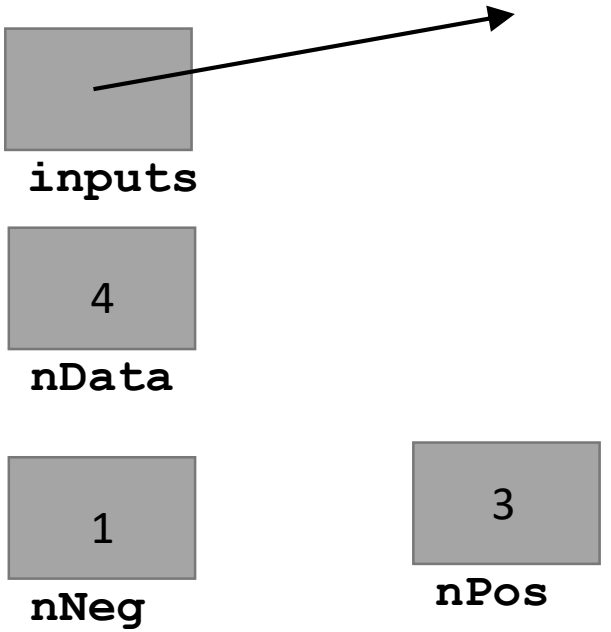
}
```



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