

XGC - the X General Collection

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Intro:

The **XGC** is a library for common data structure written with C. It provides common access for programming. It's licensed under Apache License v2.0 .

Design:

Names:

Collection: the object

Element: void*

Index: int

Operations:

Collection:

mkxxx: create new collection

initxxx(xxx): initialize *xxx*

rmxxx(xxx): delete *xxx* from memory

clxxx(xxx): clear all elements in *xxx*

xxxlen(xxx): get the length of *xxx*

xxxtrv(xxx, callback): travel *xxx* with *callback*

Element:

Append:

xxxadd(xxx, elem): add *elem* to the end of *xxx*

xxxins(xxx, index, elem): insert *elem* to *xxx* in *index*

xxxext(xxx, col): extend *xxx* with other *col*

Remove:

xxxdel(xxx, elem): delete *elem* from *xxx*

xxxpop(xxx, index): delete *elem* from *xxx* by *index*

Locate:

xxxloc(xxx, elem): get the index of *elem* in *xxx*

xxxhas(xxx, elem): test *elem* is in *xxx*

Get:

xxxget(xxx, index, def): get element in *xxx* by *index*, if not found, return *def*

Set:

xxxset(xxx, index, elem): set element at *index* with *elem* in *xxx*

1. Sequenced structure
 - Linear list:
 - Linked list: `XList`
 - Common array: `XArray`
 - Stack, the FILO
 - Stack: `XStack`
 - Queue, the FIFO
 - Common queue: `XQueue`
 - Double end queue: `XDeque`
2. Mapping structure
 - Hash table: `XHashTable`
3. Graphic structure
 - Tree:
 - Binary tree: `XBinTree`
 - Common tree: `XTree`
 - Graph

APIs :

`XList`, `XArray`:

`revlist(list, cmp_fun)`: reverse *list* with *cmp_fun*

`mkary(cap=n, inc=m)`: set the capacity *n* and increment *m*
all common operations