https://github.com/tonujet/c-embedded/blob/main/basics/L3/code/src/main.c

Вивід в консолі:

```
Are both the same struct?: 1
|--------------------------->
| Name: Hello world
| Price: 1000.00 UAH
| Pages: 255
| Weight: 2.00 kg
| Year 2003
| Language: Ukrainian
|--------------------------->
|--------------------------->
| Name: La lingua italiana
| Price: 333.30 UAH
| Pages: 255
| Weight: 1.10 kg
| Year 2010
| Language: Italian
|--------------------------->
|--------------------------->
| Name: Babyland
| Price: 80.00 UAH
| Pages: 25
| Weight: 0.10 kg
| Year 2020
| Language: English
|--------------------------->
```

Код:

```c
#include <stdio.h>
#include "linkedList.h"
#include "book.h"

int main() {
    Book book1 = { .price: 1000, .pageNumber: 255, .language: UA, .weight: 2, .publicationYear: 2003, .name: "Hello world"};
    Book book2 = { .price: 333.3, .pageNumber: 255, .language: IT, .weight: 1.1, .publicationYear: 2010, .name: "La lingua italiana"};
    Book book3 = { .price: 80, .pageNumber: 25, .language: UK, .weight: 0.1, .publicationYear: 2020, .name: "Babyland"};
    Book book4 = { .price: 1936.1, .pageNumber: 1000, .language: UA, .weight: 2, .publicationYear: 2020, .name: "History of Ukraine"};
    Book book5 = { .price: 345, .pageNumber: 345, .language: US, .weight: 4, .publicationYear: 2000, .name: "cpp for begginers"};
    Book *books[] = { [0]: &book1, [1]: &book2, [2]: &book3, [3]: &book4, [4]: &book5};
    pushAll( data: books, length: sizeof(books) / sizeof(books[0]));

    Book *book55 = pop();
    Book *book44 = pop();
    printf( format: "Are both the same struct?: %d\n", book44 == &book4); // true

    printList( toString: printBook);
}
```

```c
#include <stdio.h>

typedef struct {
    int index;
    struct Node *next;
    struct Node *prev;
    void *data;
} Node;

Node *head = NULL;
Node *tail = NULL;
int size = 0;

void push(void *data);
void* pop();
void initNode(Node *node, void *data);
void insert(Node *node, int i);
void delete(int i);

void printList(void (*toString)(void *data));
```

```c
#include <malloc.h>
#include "linkedList.h"



void pushAll(void **data, int length){
    for (int i = 0; i < length; i++) {
        push( data: data[i]);
    }
}

void push(void *data){
    if(head == NULL){
        head = (Node *)malloc( Size: sizeof(Node));
        initNode( node: head, data);
        tail = head;
        return;
    }
    Node *prev = tail;
    tail = (Node *)malloc( Size: sizeof(Node));
    initNode( node: tail, data);
    prev->next = tail;
    tail->prev = prev;
};
```

```c
void* pop(){
    if(head == NULL) return NULL;
    size--;

    Node *prevTail = tail;
    tail = tail->prev;

    if (tail != NULL)tail->next = NULL;
    else {
        head = NULL;
        return NULL;
    }

    void *data = prevTail->data;
    free( Memory: prevTail);
    return data;
};

void printList(void (*toString)(void *data)){
    Node *el = (Node *) head;
    while(el != NULL){
        toString(el -> data);
        el = (Node *) el->next;
    }
};


void initNode(Node *node, void *data){
    node->data = data;
    node->index = size++;
    node->next = NULL;
    node->prev = NULL;
}

```

```c
#include <stdio.h>
#include "book.h"


void printBook(void *book){
    Book *b = (Book*) book;
    printf( format: "|--------------------------->\n");
    printf( format: "| Name: %s\n", b->name);
    printf( format: "| Price: %.2f UAH\n", b->price);
    printf( format: "| Pages: %d\n", b->pageNumber);
    printf( format: "| Weight: %.2f kg\n", b->weight);
    printf( format: "| Year %d\n", b->publicationYear);
    printLanguage( l: b->language);
    printf( format: "|--------------------------->\n");
};

void printLanguage(enum Language l){
    printf( format: "| Language: ");
    switch (l) {
        case UA:
            printf( format: "Ukrainian");
            break;
        case IT:
            printf( format: "Italian");
            break;
        case US:
        case UK:
            printf( format: "English");
            break;
    }
    printf( format: "\n");
}

```

```c
enum Language  {
    UA,
    US,
    UK,
    IT,
};

typedef struct {
    double price;
    unsigned int pageNumber;
    enum Language language;
    double weight;
    unsigned int publicationYear;
    char name[255];
} Book;


void printBook(void *book);
void printLanguage(enum Language l);

```