

Assignment 3

Realize the double-linked list ADT implementation given below by using the partial implementation of a single-linked list ADT given in week14_lab13/linked_list_partial.zip. You can write any number of additional functions if needed.

```
typedef struct DLINKED_LIST_NODE_s *DLINKED_LIST_NODE;
typedef struct DLINKED_LIST_NODE_s{
    DLINKED_LIST_NODE next; /*Do not change the order.*/
    DLINKED_LIST_NODE prev;
    void *data;
} DLINKED_LIST_NODE_t[1];

typedef struct DLINKED_LIST_s *DLINKED_LIST;
typedef struct DLINKED_LIST_s{
    DLINKED_LIST_NODE head; /*May overlap with next.*/
} DLINKED_LIST_t[1];

DLINKED_LIST dlinked_list_init();
void dlinked_list_free(DLINKED_LIST list);
void dlinked_list_prepend(DLINKED_LIST list, void *data);
void dlinked_list_append(DLINKED_LIST list, void *data);
void dlinked_list_insert(DLINKED_LIST list, void *data, int idx);
void dlinked_list_set(DLINKED_LIST list, void *data, int idx);
void *dlinked_list_get(DLINKED_LIST list, int idx);
void *dlinked_list_remove(DLINKED_LIST list, int idx);
void dlinked_list_removeall(DLINKED_LIST list);
```