

Mobile application tracker

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#include <stdio.h>
#include <stdlib.h>
#include <string.h>
// SDK Module – User Actions
Typedef struct SDKNode {
    Char action[100];
    Char timestamp[50];
    Struct SDKNode* next;
} SDKNode;
// Auth Module – Users (logged-in or guest)
Typedef struct AuthNode {
    Char user_id[50];
    Int is_logged_in; // 1 = logged in, 0 = guest
    Struct AuthNode* next;
} AuthNode;
// Event Logger – Events
Typedef struct EventNode {
    Char event_name[100];
    Char timestamp[50];
    Struct EventNode* next;
} EventNode
// Session Tracker – Sessions
Typedef struct SessionNode {
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Char session_id[50];
Char start_time[50];
Char end_time[50];
Struct SessionNode* next;
} SessionNode;

// Geo Tracker – Geo points

Typedef struct GeoNode {
    Double latitude;
    Double longitude;
    Char timestamp[50];
    Struct GeoNode* next;
} GeoNode;

// Insert SDK action into linked list

Void insertSDKAction(SDKNode** head, const char* action, const char* timestamp) {
    SDKNode* new_node = (SDKNode*)malloc(sizeof(SDKNode));
    Strcpy(new_node->action, action);
    Strcpy(new_node->timestamp, timestamp);
    New_node->next = *head;
    *head = new_node;
}

// Insert Auth user into linked list

Void insertAuthUser(AuthNode** head, const char* user_id, int is_logged_in) {
    AuthNode* new_node = (AuthNode*)malloc(sizeof(AuthNode));
    Strcpy(new_node->user_id, user_id);
}

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New_node->is_logged_in = is_logged_in;

New_node->next = *head;

*head = new_node;

}

// Insert Event into linked list

Void insertEvent(EventNode** head, const char* event_name, const char*
timestamp) {

EventNode* new_node = (EventNode*)malloc(sizeof(EventNode));

Strcpy(new_node->event_name, event_name);

Strcpy(new_node->timestamp, timestamp);

New_node->next = *head;

*head = new_node;

}

// Insert Session into linked list

Void insertSession(SessionNode** head, const char* session_id, const char*
start_time, const char* end_time) {

SessionNode* new_node = (SessionNode*)malloc(sizeof(SessionNode));

Strcpy(new_node->session_id, session_id);

Strcpy(new_node->start_time, start_time);

Strcpy(new_node->end_time, end_time);

New_node->next = *head;

*head = new_node;

}

// Insert Geo point into linked list

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Void insertGeoPoint(GeoNode** head, double latitude, double longitude, const
char* timestamp) {

    GeoNode* new_node = (GeoNode*)malloc(sizeof(GeoNode));

    New_node->latitude = latitude;
    New_node->longitude = longitude;
    Strcpy(new_node->timestamp, timestamp);
    New_node->next = *head;
    *head = new_node;
}

// Print functions for each module

Void printSDKActions(SDKNode* head) {

    Printf("SDK Actions:\n");

    While (head) {

        Printf("Action: %s, Time: %s\n", head->action, head->timestamp);

        Head = head->next;
    }
}

Void printAuthUsers(AuthNode* head) {

    Printf("Auth Users:\n");

    While (head) {

        Printf("User ID: %s, Logged In: %s\n", head->user_id, head->is_logged_in ?
        "Yes" : "Guest");

        Head = head->next;
    }
}

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Void printEvents(EventNode* head) {
    Printf("Events:\n");
    While (head) {
        Printf("Event: %s, Time: %s\n", head->event_name, head->timestamp);
        Head = head->next;
    }
}

Void printSessions(SessionNode* head) {
    Printf("Sessions:\n");
    While (head) {
        Printf("Session ID: %s, Start: %s, End: %s\n", head->session_id, head->start_time, head->end_time);
        Head = head->next;
    }
}

Void printGeoPoints(GeoNode* head) {
    Printf("Geo Points:\n");
    While (head) {
        Printf("Lat: %.4f, Long: %.4f, Time: %s\n", head->latitude, head->longitude, head->timestamp);
        Head = head->next;
    }
}

Int main() {
    SDKNode* sdk_actions = NULL;
}

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AuthNode* auth_users = NULL;
EventNode* events = NULL;
SessionNode* sessions = NULL;
GeoNode* geo_points = NULL;

// Insert sample data

insertSDKAction(&sdk_actions, "SwipeLeft", "2025-05-24T12:01:00Z");
insertSDKAction(&sdk_actions, "TapButton", "2025-05-24T12:02:00Z");
insertAuthUser(&auth_users, "user123", 1);
insertAuthUser(&auth_users, "guest001", 0);
insertEvent(&events, "PageView", "2025-05-24T12:03:00Z");
insertEvent(&events, "ButtonClick", "2025-05-24T12:04:00Z");
insertSession(&sessions, "session001", "12:00", "12:30");
insertSession(&sessions, "session002", "12:31", "13:00");
insertGeoPoint(&geo_points, 37.7749, -122.4194, "2025-05-24T12:00:00Z");
insertGeoPoint(&geo_points, 37.7750, -122.4195, "2025-05-24T12:05:00Z");

// Print all

printSDKActions(sdk_actions);
printAuthUsers(auth_users);
printEvents(events);
printSessions(sessions);
printGeoPoints(geo_points);

return 0;

}
```