

## CODING

```
#include <stdio.h>

#include <stdlib.h>

#include <string.h>


// Structure for currency rate
typedef struct {
    char code[4]; // Currency code like USD, INR, EUR
    float rate; // Exchange rate relative to base currency
} Currency;


// Linked list node for conversion history
typedef struct HistoryNode {
    char from[4];
    char to[4];
    float amount;
    float result;
    struct HistoryNode* next;
} HistoryNode;


#define NUM_CURRENCIES 5


Currency currencies[NUM_CURRENCIES] = {
    {"INR", 1.0},
    {"USD", 0.012},
    {"EUR", 0.011},
    {"GBP", 0.0095},
    {"JPY", 1.75}
```

```
};
```

```
HistoryNode* historyHead = NULL;
```

```
// Function to find the exchange rate of a currency code
```

```
float getRate(char code[]) {
```

```
for (int i = 0; i < NUM_CURRENCIES; i++) {
```

```
if (strcmp(currencies[i].code, code) == 0) {
```

```
return currencies[i].rate;
```

```
}
```

```
}
```

```
return -1.0; // Error code for currency not found
```

```
}
```

```
// Function to add a conversion to history
```

```
void addToHistory(char from[], char to[], float amount, float result) {
```

```
HistoryNode* newNode = (HistoryNode*) malloc(sizeof(HistoryNode));
```

```
strcpy(newNode->from, from);
```

```
strcpy(newNode->to, to);
```

```
newNode->amount = amount;
```

```
newNode->result = result;
```

```
newNode->next = historyHead;
```

```
historyHead = newNode;
```

```
}
```

```
// Function to display history
```

```
void displayHistory() {
```

```
HistoryNode* temp = historyHead;
```

```

if (temp == NULL) {
    printf("No conversions done yet.\n");
    return;
}

printf("\n--- Conversion History ---\n");
while (temp != NULL) {
    printf("%.2f %s => %.2f %s\n", temp->amount, temp->from, temp->result, temp->to);
    temp = temp->next;
}

printf("-----\n");
}

```

// Function to perform currency conversion

```

void convertCurrency() {
    char from[4], to[4];
    float amount, result;

    printf("Enter source currency code (e.g., INR): ");
    scanf("%s", from);
    printf("Enter target currency code (e.g., USD): ");
    scanf("%s", to);
    printf("Enter amount: ");
    scanf("%f", &amount);

```

```

float fromRate = getRate(from);

```

```

float toRate = getRate(to);

```

```

if (fromRate == -1 || toRate == -1) {

```

```
printf("Invalid currency code entered.\n");  
return;  
}
```

```
result = (amount * toRate) / fromRate;  
printf("Converted Amount: %.2f %s\n", result, to);
```

```
addToHistory(from, to, amount, result);  
}
```

```
// Function to free linked list memory  
void freeHistory() {  
    HistoryNode* temp;  
    while (historyHead != NULL) {  
        temp = historyHead;  
        historyHead = historyHead->next;  
        free(temp);  
    }  
}
```

```
int main() {  
    int choice;  
    do {  
        printf("\n--- Currency Converter ---\n");  
        printf("1. Convert Currency\n");  
        printf("2. View History\n");  
        printf("3. Exit\n");  
        printf("Enter your choice: ");
```

```
scanf("%d", &choice);
```

```
switch (choice) {
```

```
case 1: convertCurrency(); break;
```

```
case 2: displayHistory(); break;
```

```
case 3: freeHistory(); printf("Exiting...\n"); break;
```

```
default: printf("Invalid choice. Try again.\n");
```

```
}
```

```
} while (choice != 3);
```

```
return 0;
```

```
}
```