```c
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <stdint.h> //to define uint8_t...

#include "../Card/card.h"
#include "terminal.h"
//transdate
EN_terminalError_t getTransactionDate(ST_terminalData_t *termData)
{
    EN_terminalError_t State = TERMINAL_OK;

    uint8_t transactionDate[11] = {0};

    printf("\n please enter the transaction date DD/MM/YYYY: ");
    scanf("%s",transactionDate);

    uint8_t TransactionDateLength = strlen(transactionDate);

    if( (TransactionDateLength < 10) || (TransactionDateLength > 10) || (transactionDate[2] != '/') || (transactionDate[5] != '/')||(NULL == transactionDate) )
    {
        State = WRONG_DATE;
    }
    else
    {
        strcpy(termData->transactionDate, transactionDate);
    }

    return State;
}
//ISCARD WXPIRED
EN_terminalError_t isCardExpired(ST_cardData_t cardData, ST_terminalData_t termData)
{
    EN_terminalError_t State = TERMINAL_OK;
    //MM/YY DD/MM/YYYY
    //01234 0123456789
    uint8_t CardExpiryMonth = ((cardData.cardExpirationDate[0] - '0') * 10) + (cardData.cardExpirationDate[1] - '0');
    uint8_t CardExpiryYear  = ((cardData.cardExpirationDate[3] - '0') * 10) + (cardData.cardExpirationDate[4] - '0');

    uint8_t TransactionMonth = ((termData.transactionDate[3] - '0') * 10) + (termData.transactionDate[4] - '0');
    uint8_t TransactionYear  = ((termData.transactionDate[8] - '0') * 10) + (termData.transactionDate[9] - '0');

    if( (CardExpiryYear < TransactionYear) )
    {
        State = EXPIRED_CARD;
    }
    else if( (CardExpiryYear == TransactionYear) )
    {
        if( (CardExpiryMonth < TransactionMonth) )
        {
            State = EXPIRED_CARD;
```

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52              }
53              else {State = TERMINAL_OK;}
54          }
55          else {State = TERMINAL_OK;}
56
57          return State;
58      }
59      //transamount
60      EN_terminalError_t getTransactionAmount(ST_terminalData_t
        *termData)
61      {
62          EN_terminalError_t State = TERMINAL_OK;
63
64          float transAmount = 0;
65          printf("\n please enter  your transaction amount: ");
66          scanf("%f", &transAmount);
67
68          if( ( transAmount<=0) )
69          {
70              State = INVALID_AMOUNT;
71          }
72          else
73          {
74              termData->transAmount = transAmount;
75          }
76          return State;
77      }
78      //isbelow max
79      EN_terminalError_t isBelowMaxAmount(ST_terminalData_t *termData)
80      {
81          EN_terminalError_t State = TERMINAL_OK;
82
83          if( (termData->transAmount > termData->maxTransAmount) )
84          {
85              State = EXCEED_MAX_AMOUNT;
86          }
87          else{State = TERMINAL_OK;}
88
89          return State;
90      }
91      //maxamount
92      EN_terminalError_t setMaxAmount(ST_terminalData_t *termData)
93      {
94          EN_terminalError_t State = TERMINAL_OK;
95
96          float maxTransAmount = 0;
97
98          printf("\n please enter maximum transaction amount: ");
99          scanf("%f", &maxTransAmount);
100
101         if( (maxTransAmount<=0) )
102         {
103             State = INVALID_MAX_AMOUNT;
104         }
105         else
106         {
107             termData->maxTransAmount = maxTransAmount;
108         }
```

```
109
110         return State;
111     }
112     //terminal test functions
113     //getTransactionDateTest
114     #ifdef getTransactionDateTest
115     static uint8_t getTransactionDateTest(ST_cardData_t
        *cardTest,ST_terminalData_t *TermianlTest)
116     {
117       uint8_t State = 0;
118       if( ( getTransactionDateTest(TermianlTest)==1) )
119       {
120         printf("\n getTransactionDateTest: valid transaction date");
121         State = 1;
122       }
123       else
124       {
125        printf("\n getTransactionDateTest: invalid transaction date");
126       }
127       return State;
128     }
129
130     static uint8_t getTransactionDateTest(ST_terminalData_t
        *termData)
131     {
132         uint8_t State = 0;
133
134         uint8_t result = getTransactionDate(termData);
135
136         if( (result == WRONG_DATE ) )
137         {
138             printf("\n getTransactionDateTest: WRONG_DATE");
139         }
140         else
141         {
142             State = 1;
143         }
144
145         return State;
146     }
147     #endif // getTransactionDateTest
148
149     #ifdef isCardExpiredTest
150     static uint8_t isCardExpiredTest(ST_cardData_t
        *cardTest,ST_terminalData_t *TermianlTest)
151     {
152       uint8_t State = 0;
153       if( ( isCardExpiredTest(cardTest,TermianlTest)==1) )
154       {
155         printf("\n isCardExpiredTest: card is not expired");
156         State = 1;
157       }
158       else
159       {
160        printf("\n isCardExpiredTest: card is expired");
161       }
162       return State;
163     }
```

```
164
165 static uint8_t isCardExpiredTest(ST_cardData_t cardData,
    ST_terminalData_t termData);
166 {
167     uint8_t State = 0;
168
169     uint8_t result = isCardExpired(cardData, termData);
170
171     if( (result == EXPIRED_CARD ) )
172     {
173         printf("\n isCardExpiredTest: EXPIRED_CARD");
174     }
175     else
176     {
177         State = 1;
178     }
179
180     return State;
181 }
182 #endif // isCardExpiredTest
183
184
185 #ifdef  getTransactionAmountTest
186 static uint8_t getTransactionAmountTest(ST_cardData_t
    *cardTest,ST_terminalData_t *TermianlTest)
187 {
188   uint8_t State = 0;
189   if( ( getTransactionAmountTest(TermianlTest)==1) )
190   {
191     printf("\n getTransactionAmountTest: valid amount");
192     State = 1;
193   }
194   else
195   {
196    printf("\n getTransactionAmountTest: inalid amount");
197   }
198   return State;
199 }
200
201 static uint8_t getTransactionAmountTest(ST_terminalData_t
    *termData);
202 {
203     uint8_t State = 0;
204
205     uint8_t result = getTransactionAmount(termData);
206
207     if( (result == INVALID_AMOUNT ) )
208     {
209         printf("\n getTransactionAmountTest: INVALID_AMOUNT");
210     }
211     else
212     {
213         State = 1;
214     }
215
216     return State;
217 }
218 #endif // getTransactionAmountTest
```

```
219
220   #ifdef  isBelowMaxAmountTest
221   static uint8_t isBelowMaxAmountTest(ST_cardData_t
      *cardTest,ST_terminalData_t *TermianlTest)
222   {
223     uint8_t State = 0;
224     if( ( isBelowMaxAmountTest(TermianlTest)==1) )
225     {
226       printf("\n isBelowMaxAmountTest: below max amount");
227       State = 1;
228     }
229     else
230     {
231      printf("\n isBelowMaxAmountTest: above max amount");
232     }
233     return State;
234   }
235
236   static uint8_t isBelowMaxAmountTest(ST_terminalData_t *termData);
237   {
238       uint8_t State = 0;
239
240       uint8_t result = isBelowMaxAmount(termData);
241
242       if( (result == EXCEED_MAX_AMOUNT ) )
243       {
244           printf("\n isBelowMaxAmountTest: EXCEED_MAX_AMOUNT");
245       }
246       else
247       {
248           State = 1;
249       }
250
251       return State;
252   }
253   #endif // isBelowMaxAmountTest
254
255   #ifdef  setMaxAmountTest
256   static uint8_t setMaxAmountTest(ST_cardData_t
      *cardTest,ST_terminalData_t *TermianlTest)
257   {
258     uint8_t State = 0;
259     if( ( setMaxAmountTest(TermianlTest)==1) )
260     {
261       printf("\n setMaxAmountTest:  max amount ok");
262       State = 1;
263     }
264     else
265     {
266      printf("\n setMaxAmountTest: invalid max amount");
267     }
268     return State;
269   }
270
271   static uint8_t setMaxAmountTest(ST_terminalData_t *termData);
272   {
273       uint8_t State = 0;
274
```

```
275         uint8_t result = setMaxAmount(termData);
276 
277         if( (result == INVALID_MAX_AMOUNT ) )
278         {
279             printf("\n setMaxAmountTest: INVALID_MAX_AMOUNT");
280         }
281         else
282         {
283             State = 1;
284         }
285 
286         return State;
287     }
288     #endif // setMaxAmountTest
289 
290 
291     /*int main3()
292     {
293         printf("Hello world3!\n");
294 
295         return 0;
296     }
297 
```