ព្រះរាជាណាចក្រកម្ពុជា

ជាតិ សាសនា ព្រះមហាក្សត្រ

Institute of technology of Cambodia

Department of Information and communication Engineering

FILE IO IN C++

Project: Algorithm and Programming ll

Lecturer: BOU CHANNA

Student: VEN THON

ID: e20191250

Group: I3-GIC-C

Year: 2022-2023

Problem1:
Product management:

1.Create product
2.Display all product
3.Display a product by ID
4.Update product by ID
5.Delete product by ID
6.Search for a product

Problem2:
Book store management:

1.Create book store
2.Display all book store
3.Display a book store by ID
4.Update book store by ID
5.Delete book store by ID
6.Search for a book store

Problem3:
Number testing:

1.Check if its a primary number
2.Check if its a perfect number
3.Check if its a palindrome number

Problem4:
Basic math:

1.Summation of all numbers
2.Subtraction of all numbers
3.Multiplication of all numbers
4.Division of all numbers

Problem5:
Math suit:

1. 1+2+3+....+n
2. 1+3+5+....+n
3. 1^2+2^2+....+n^2

4.Sum primary 1 to n

Problem6:
Number conversion:

1.Base 2 to 10
2.Base 10 to 2
3.Base 8 to 10
4.Base 10 to 8
5.Base 10 to 16

Start here | Main project.cpp

```cpp
#include<iostream>
#include<iomanip>
#include<string.h>
#include<fstream>
#include<cmath>
#include<conio.h>
#include<process.h>
#include<time.h>
using namespace std;
time_t mytime=time(0);
char*track=ctime(&mytime);
struct product{
    string product_ID;
    float price;
    string product_name;
    int qty;
};
struct product pro[20];
struct bookstore{
    string bookID;
    int bookYear;
    float price;
    string bookName;
    string bookISBN;
    string authorName;
};
struct bookstore bo[100];
void menu()
{
    cout<<"\n\t\t+=====================================+";
    cout<<"\n\t\t||<<<<<<   MENU OF PROJECT    >>>>>>||";
    cout<<"\n\t\t+=====================================+";
    cout<<"\n\t\t||I.Product Management               ||";
    cout<<"\n\t\t||II.Book store Management           ||";
    cout<<"\n\t\t||III.Number Testing                 ||";
    cout<<"\n\t\t||IV.Basic Math                      ||";
    cout<<"\n\t\t||V.Math suit computation            ||";
    cout<<"\n\t\t||VI.Number Conversion               ||";
    cout<<"\n\t\t+=====================================+";
}
```

```
41  void diplaymenuproduct()
42  {
43      cout<<"\n\t\t+====================================+";
44      cout<<"\n\t\t|| I.   MENU PRODUCT MANAGEMENT    ||";
45      cout<<"\n\t\t+====================================+";
46      cout<<"\n\t\t||1.Create product                  ||";
47      cout<<"\n\t\t||2.Display all product             ||";
48      cout<<"\n\t\t||3.Display a product by ID         ||";
49      cout<<"\n\t\t||4.Update product by ID            ||";
50      cout<<"\n\t\t||5.Delete product by ID            ||";
51      cout<<"\n\t\t||6.Search for a product            ||";
52      cout<<"\n\t\t+====================================+";
53  }
54  void diplaymenubook()
55  {
56      cout<<"\n\t\t+====================================+";
57      cout<<"\n\t\t|| II.      MENU BOOK STORE         ||";
58      cout<<"\n\t\t+====================================+";
59      cout<<"\n\t\t||1.Create book store               ||";
60      cout<<"\n\t\t||2.Display all book store          ||";
61      cout<<"\n\t\t||3.Display a book store by ID      ||";
62      cout<<"\n\t\t||4.Update book store by ID         ||";
63      cout<<"\n\t\t||5.Delete book store by ID         ||";
64      cout<<"\n\t\t||6.Search for a book store         ||";
65      cout<<"\n\t\t+====================================+";
66  }
67  void displaymenuNumbertesting()
68  {
69      cout<<"\n\t\t+====================================+";
70      cout<<"\n\t\t|| III.     MENU NUMBER TESTING     ||";
71      cout<<"\n\t\t+====================================+";
72      cout<<"\n\t\t||1.Check if its a primary number   ||";
73      cout<<"\n\t\t||2.Check if its a perfect number   ||";
74      cout<<"\n\t\t||3.Check if its a palindrome number||";
75      cout<<"\n\t\t+====================================+";
76  }
```

```
77  void dislpaymenubasicmath()
78  {
79      cout<<"\n\t\t+====================================+";
80      cout<<"\n\t\t|| IV.        MENU BASIC MATH       ||";
81      cout<<"\n\t\t+====================================+";
82      cout<<"\n\t\t||1.Summation of all numbers        ||";
83      cout<<"\n\t\t||2.Subtraction of all numbers      ||";
84      cout<<"\n\t\t||3.Multiplication of all numbers   ||";
85      cout<<"\n\t\t||4.Division of all numbers         ||";
86      cout<<"\n\t\t+====================================+";
87  }
88  void dislpaymenumathsuit()
89  {
90      cout<<"\n\t\t+====================================+";
91      cout<<"\n\t\t||  V.       MENU MATH SUIT         ||";
92      cout<<"\n\t\t+====================================+";
93      cout<<"\n\t\t||  1.1+2+3+....+n                  ||";
94      cout<<"\n\t\t||  2.1+3+5+....+n                  ||";
95      cout<<"\n\t\t||  3.1^2+2^2+....+n^2              ||";
96      cout<<"\n\t\t||  4.Sum primary 1 to n            ||";
97      cout<<"\n\t\t+====================================+";
98  }
99  void dislpaymenuNumberConvertion()
100 {
101     cout<<"\n\t\t+====================================+";
102     cout<<"\n\t\t||  VI.  MENU NUMBER CONVERTION     ||";
103     cout<<"\n\t\t+====================================+";
104     cout<<"\n\t\t||  1.Base 2 to 10                  ||";
105     cout<<"\n\t\t||  2.Base 10 to 2                  ||";
106     cout<<"\n\t\t||  3.Base 8 to 10                  ||";
107     cout<<"\n\t\t||  4.Base 10 to 8                  ||";
108     cout<<"\n\t\t||  5.Base 10 to 16                 ||";
109     cout<<"\n\t\t+====================================+";
110 }
```

```
}

////////////////////////////////////////////////////////////////////////// all information product
void createproduct(int i)
{
    cout<<"\tEnter info of product<< "<<i+1<<" >>"<<endl;
    cout<<"\tEnter name of product: ";cin>>pro[i].product_name;
    cout<<"\tEnter number of product ID: ";cin>>pro[i].product_ID;
    cout<<"\tEnter number of price($): ";cin>>pro[i].price;
    cout<<"\tEnter number of qty: ";cin>>pro[i].qty;
    cout<<endl;
}
void diplayproduct(int i)
{
    cout<<setw(10)<< pro[i].product_name<<setw(10)<<pro[i].product_ID<<setw(10)<<pro[i].price<<setw(10)<<" "<< pro[i].qty<<endl;
}
void diplayproductByID(int i,string id)
{
    if(id==pro[i].product_ID)
    {
        cout<<setw(10)<< pro[i].product_name<<setw(10)<<pro[i].product_ID<<setw(10)<<pro[i].price<<setw(10)<<" "<< pro[i].qty<<endl;
    }
}
```

```
int updatebyId(int i,string newId,string product_ID,string product_name, string newName,int qty, int newQty,int price, int newPrice)
{
    int isfind=-1;
    if(pro[i].product_ID==product_ID)
    {
        pro[i].product_ID=newId;

    }else if(pro[i].product_name==product_name)
    {
        pro[i].product_name=newName;

    }else if(pro[i].price==price)
    {
        pro[i].price=newPrice;

    }else if(pro[i].qty==qty)
    {
        pro[i].qty=newQty;
    }
    isfind=1;
    cout<<setw(10)<< newName<<setw(10)<<newId<<setw(10)<<newPrice<<setw(10)<<" "<< newQty<<endl;
    return isfind;
}
void deletebyID(int i, string id)
{
    if(id==pro[i].product_ID)
    {
        cout<<"\tDisplay information of product."<<endl;
        cout<<"\n\tName\t  ID\t   price\tqty\n"<<endl;
        cout<<setw(10)<< pro[i].product_name<<setw(10)<<pro[i].product_ID<<setw(10)<<pro[i].price<<setw(10)<<" "<< pro[i].qty<<endl;
        pro[i]=pro[30];
        cout<<"\n\tDeleted\n";
        cout<<"\n\tName\t  ID\t   price\tqty\n"<<endl;
        cout<<setw(10)<< pro[i].product_name<<setw(10)<<pro[i].product_ID<<setw(10)<<pro[i].price<<setw(10)<<" "<< pro[i].qty<<endl;
    }
}
```

```
}
void searchproduct(int i,string productsearch)
{
    if(productsearch==pro[i].product_name)
    {
        cout<<setw(10)<< pro[i].product_name<<setw(10)<<pro[i].product_ID<<setw(10)<<pro[i].price<<setw(10)<<" "<< pro[i].qty<<endl;
    }
}

//////////////////////////////////////////////////////////////////all information book store
void createbookstore(int i)
{
    cout<<"\tEnter info in bookstore<< "<<i+1<<" >>"<<endl;
    cout<<"\tEnter name of books: ";cin>>bo[i].bookName;
    cout<<"\tEnter number id of bookstore: ";cin>>bo[i].bookID;
    cout<<"\tEnter name author to make book: ";cin>>bo[i].authorName;
    cout<<"\tEnter name of bookstore title: ";cin>>bo[i].bookISBN;
    cout<<"\tEnter number of price($): ";cin>>bo[i].price;
    cout<<"\tEnter year to make book: ";cin>>bo[i].bookYear;
    cout<<endl;
}
void diplayinfobookstore(int i)
{
    cout<<setw(10)<< bo[i].bookName<<setw(10)<<bo[i].bookID<<setw(10)<<bo[i].authorName<<setw(10)<<bo[i].bookISBN<<setw(10)<<bo[i].price<<setw(10)<<bo[i].bookYear<<endl;
}
void diplaybookstoreByID(int i,string id)
{
    if(id==bo[i].bookID)
    {
        cout<<setw(10)<< bo[i].bookName<<setw(10)<<bo[i].bookID<<setw(10)<<bo[i].authorName<<setw(10)<<bo[i].bookISBN<<setw(10)<<bo[i].price<<setw(10)<<bo[i].bookYear<<endl;
    }
}
```

```
}
int updatebyId(int i,string newId,string newbookName,string newAuthorname,string newbookISBN,int newbookYear,float newPrice)
{
    int isfind=-1;
    string bookID;
    int bookYear;
    float price;
    string bookName;
    string bookISBN;
    string authorName;

    if(bo[i].bookID==bookID)
    {
        bo[i].bookID=newId;

    }else if(bo[i].bookName==bookName)
    {
        bo[i].bookName=newbookName;

    }else if(bo[i].price==price)
    {
        bo[i].price=newPrice;

    }else if(bo[i].authorName==authorName)
    {
        bo[i].authorName=newAuthorname;

    }else if(bo[i].bookISBN==bookISBN)
    {
        bo[i].bookISBN=newbookISBN;

    }else if(bo[i].bookYear==bookYear)
    {
        bo[i].bookYear=newbookYear;

    }
    isfind=1;
    cout<<setw(10)<<newbookName<<setw(10)<<newId<<setw(10)<<newAuthorname<<setw(10)<<newbookISBN<<setw(10)<<" "<<newPrice<<setw(10)<<newbookYear<<endl;
    return isfind;
}
```

```
}
void deletebookbyID(int i,string id)
{
    if(id==bo[i].bookID)
    {
        cout<<"\t<<==Display information of all id to delete"<<endl;
        cout<<"\n\tName\t  ID\tauthorName\tISBN\tprice\tyear"<<endl;
        cout<<setw(10)<< bo[i].bookName<<setw(10)<<bo[i].bookID<<setw(10)<<bo[i].authorName<<setw(10)<<bo[i].bookISBN<<setw(10)<<" "<<bo[i].price<<setw(10)<<bo[i].bookYear<<endl;
        bo[i]=bo[30];
        cout<<"\n\tDeleted\n";
        cout<<"\n\tName\t  ID\tauthorName\tISBN\tprice\tyear"<<endl;
        cout<<setw(10)<< bo[i].bookName<<setw(10)<<bo[i].bookID<<setw(10)<<bo[i].authorName<<setw(10)<<bo[i].bookISBN<<setw(10)<<" "<<bo[i].price<<setw(10)<<bo[i].bookYear<<endl;
    }
}
void searchbook(int i,string bookResearch)
{
    if(bookResearch==bo[i].bookName)
    {
       cout<<setw(10)<< bo[i].bookName<<setw(10)<<bo[i].bookID<<setw(10)<<bo[i].authorName<<setw(10)<<bo[i].bookISBN<<setw(10)<<" "<<bo[i].price<<setw(10)<<bo[i].bookYear<<endl;
    }
}

//////////////////////////////////////////////////////////////////////all information number testring
void numbertestringisprimary(int num)
{
    int state=0;
    for(int k=2; k<num/2; k++)
    {
        if(num%k==0)
        {
            state=1;
        }
        if(state==0)
        {
            cout<<"\n\t\tThe value of number is primary number";
        }else{
            cout<<"\n\t\tThe value of number is not primary number";
        }
    }
}
```

```
void numbertestringisperfect(int num)
{
    int p,sum=0;
    p=num;
    for(int i=1; i<=(p-1); i++)
    {
        if(p%i==0)
        {
            sum=sum+1;
        }
    }
    if(sum==num)
    {
        cout<<"\n\t\tThe value of number is perfect number";

    }else{
        cout<<"\n\t\tThe value of number is not perfect number";
    }
}
void numbertestringispalindrome(int num)
{
    int reversed=0,rem,org;
    org=num;
    while(num!=0)
    {
        rem=num%10;
        reversed=reversed*10+rem;
        num/=10;
    }
    if(org==reversed)
    {
        cout<<"\n\t\tThe value of num is palindrome number";
    }else{
        cout<<"\n\t\tThe value of num is not palindrome number";
    }
}
```

```
314
315 ////////////////////////////////////////////////////////////////////////// all information basic math
316 void BasicMath(float a, float b)
317 {
318     float sum, mul,sub,div;
319     sum=a+b;
320     sub=a-b;
321     mul=a*b;
322     div=a/b;
323     cout<<"\n\t\tSummation all numbers is: "<<sum<<endl;
324     cout<<"\t\tSubtraction all numbers is: "<<sub<<endl;
325     cout<<"\t\tMultiplication all numbers is: "<<mul<<endl;
326     cout<<"\t\tDivision all numbers is: "<<div<<endl;
327 }
328
329 ////////////////////////////////////////////////////////////////////////////// all information math suit
330 void mathsuit1toN(int n)
331 {
332     int sum=0;
333     for(int i=1; i<=n;  i++)
334     {
335         sum=sum+i;
336     }
337     cout<<"\n\t\tSum of all numbers: 1+2+3+...+n= "<<sum<<endl;
338 }
339 void mathsuitaddNumber(int n)
340 {
341     int sum=0;
342     for(int i=1; i<=n; i=i+2)
343     {
344         sum=sum+i;
345     }
346     cout<<"\n\t\tSum of all numbers: 1+3+5+...+n= "<<sum<<endl;
347 }
```

```
347 }
348 void mathsuitN(int n)
349 {
350     int sum=0;
351     for(int i=1; i<=n; i++)
352     {
353         sum=sum+i*i;
354     }
355     cout<<"\n\t\tSum of all numbers: 1^1+2^2+...+n^2=  "<<sum<<endl;
356 }
357 void mathsuitprimary(int n)
358 {
359     int sum=0,count=0;
360     for(int i=1; i<=n; i++)
361     {
362         count=0;
363         for(int j=2;  j<=i/2; j++)
364         {
365             if(i%j==0)
366             {
367                 count++;
368                 break;
369             }
370         }
371        if(count==0 && i!=1)
372        {
373            sum=sum+i;
374        }
375     }
376     cout<<"\n\t\tSum all primary numbers 1 to n= "<<sum<<endl;
377 }
378
```

```
void binarytodecimal(long k)
{
    cout<<"\n\t\tEnter number base 2: ";cin>>k;
    int dec=0, rem, i=0;
    for(int i=0; k>0; i++)
    {
        rem=k%10;
        k/=10;
        dec=dec+rem*pow(2,i);
    }
    cout<<"\n\tThe number in binary = "<<dec<<" decimal number"<<endl;
}
void decimaltobinary(long k)
{
    cout<<"\n\t\tEnter number decimal: ";cin>>k;
    int bin=0,rem;
    for(int i=1; k>0;)
    {
        rem=k%2;
        k/=2;
        bin=bin+rem*i;
        i*=10;
    }
    cout<<"\n\tThe number in decimal = "<<bin<<" binary number" <<endl;
}
void octaltodecimal(long k)
{
    cout<<"\n\t\tEnter number octal: ";cin>>k;
    long dec2=0;
    int rem;// binary(1101) decimal=13 octal=2322 decimal=1234
    for(int i=0; k>0; i++)
    {
        rem=k%10;
        k=k/10;
        dec2=dec2+(rem*pow(8,i));
    }
    cout<<"\n\tThe number in octal = "<<dec2<<" decimal number"<<endl;
}
```

```
}
 void decimaltooctal(long k)
{
    cout<<"\n\t\tEnter number decimal: ";cin>>k;
    long octal=0;
    int rem;
    for(int i=1; k>0;)
    {
        rem=k%8;
        k=k/8;
        octal=octal+rem*i;
        i*=10;
    }
    cout<<"\n\tThe number in decimal = "<<octal<<" octal number"<<endl;
}
```

```
void decimaltohex(long k)
{
    int rem,i=0;
      char hexadecimal[20];
      cout<<"\n\tEnter Decimal Number :";
      cin>>k;
      while(k>0){
       rem=k%16;
       k=k/16;
       if(rem==10){
        hexadecimal[i]='A';
       }
       else if(rem==11){
        hexadecimal[i]='B';
       }
       else if(rem==12){

        hexadecimal[i]='C';
       }
       else if(rem==13){
        hexadecimal[i]='D';
       }
       else if(rem==14){
        hexadecimal[i]='E';
       }
       else if(rem==15){
        hexadecimal[i]='F';
       }
       else{
        hexadecimal[i]=(char(rem))+48;
       }
       i++;
      }
      hexadecimal[i]='\0';
      int len=strlen(hexadecimal);
      cout<<"\n\tOctal Number to Decimal Number is: ";

      for(i=len-1;i>=0;i--){
       cout<<hexadecimal[i];
      }
      cout<<"\n\n";
}
```

```
main()
{
    int option;
    int k=1,i,l=1,m=1,n=1;
    fstream fl,history;
    while(k<=6)
    {
        menu();
        cout<<"\n\n\tChoose option 1-6 of MENU OF PROJECT: ";cin>>option;
        //all info product
        if(option==1)
        {
            history.open("history.txt",ios::app);
            history<<"\nProduct Management on: "<<track;
            history.close();
            diplaymenuproduct();
            while(k<=6)
            {
                cout<<"\n\n\tEnter option 1-6 of product: ";cin>>option;
                if(option==1)
                {
                    cout<<"\n\n\t||====Enter information of all products====||\n"<<endl;
                    fl.open("Product.txt",ios::out);
                    for(int i=0; i<=2; i++)
                    {
                        createproduct(i);
                        if(i==2)
                        {
                           fl<<setw(10)<< pro[i].product_name<<setw(10)<<pro[i].product_ID<<setw(10)<<pro[i].price<<setw(10)<<" "<< pro[i].qty;
                        }else{
                            fl<<setw(10)<< pro[i].product_name<<setw(10)<<pro[i].product_ID<<setw(10)<<pro[i].price<<setw(10)<<" "<< pro[i].qty<<endl;
                        }
                    }
                    fl.close();
```

```
508             }else if(option==2)
509             {
510                 cout<<"\n\t||====Display all product====||" <<endl;
511                 cout<<"\n\tName\t  ID\t   price\tqty\n"<<endl;
512                 f1.open("Product.txt",ios::in);
513                 int i=0;
514                 while(!f1.eof())
515                 {
516                     f1>>pro[i].product_name>>pro[i].product_ID>>pro[i].price>>pro[i].qty;
517                     cout<<setw(11)<<pro[i].product_name<<setw(9)<<pro[i].product_ID<<setw(12)<<pro[i].price<<setw(11)<<pro[i].qty<<endl;
518                     i++;
519                 }
520                 f1.close();
521 
522             }else if(option==3)
523             {
524                 cout<<"\n\t||====Enter product ID you want to find====||"<<endl;
525                 cout<<"\tproductID==> ";
526                 string id;
527                 cin>>id;
528                 cout<<"\n\tName\t   ID\t   price\tqty\n"<<endl;
529                 for(int i=0; i<=2; i++)
530                 {
531                     diplayproductByID(i,id);
532 
533                 }
534 
```

```
535              }else if(option==4)
536              {
537                  cout<<"\n\t||====Display information update by id====||\n";
538                  int isfind,qty,newQty,price,newPrice;
539                  string product_name, newName,product_ID,newId;
540                  cout<<"\n\tEnter old product ID to update: ";cin>>product_ID;
541                  cout<<"\n\tEnter new product ID to update: ";cin>>newId;
542                  cout<<"\n\tEnter new product name to update: ";cin>>newName;
543                  cout<<"\n\tEnter new product price($) to update: ";cin>>newPrice;
544                  cout<<"\n\tEnter new product qty to update: ";cin>>newQty;
545                  cout<<"\n\tName\t   ID\t   price\tqty\n"<<endl;
546                  for(int i=0; i<1; i++)
547                  {
548                      isfind=updatebyId(i,newId,product_ID,product_name,newName,qty,newQty,price,newPrice);
549                      cout<<"\n\tThe product update successfully!";
550                  }
551              }else if(option==5)
552              {
553                  cout<<"\n\t||====Enter  product iD  you want to deleted====||\n";
554                  string id2;
555                  cout<<"\tproductIDdelete==>  ";
556                  cin>>id2;
557                  for(int i=0; i<=2; i++)
558                  {
559                  deletebyID(i,id2);
560                  }
561              }else if(option==6)
562              {
563                  cout<<"\n\t||====Enter name of product you want to research====||\n";
564                  cout<<"\tname of product you want research==> ";
565                  string productsearch;
566                  cin>>productsearch;
567                  cout<<"\n\tName\t   ID\t   price\tqty\n"<<endl;
568                  for(int i=0; i<=2; i++)
569                  {
570                  searchproduct(i,productsearch);
571                  }
572                  break;
```

```
                    break;
                }
            }

        }else if(option==2)//all information book store
        {
            history.open("history.txt",ios::app);
            history<<"\nBook store on: "<<track;
            history.close();
            diplaymenubook();
            while(k<=6)
            {
                cout<<"\n\n\tEnter option 1-6 of book store: ";cin>>option;
                if(option==1)
                {
                    cout<<"\n\n\t<<====Enter information of all bookstores====>>\n"<<endl;
                    fl.open("Book.txt",ios::out);
                    for(int i=0; i<=2; i++)
                    {
                        createbookstore(i);
                        if(i==2)
                        {
                            fl<<setw(10)<< bo[i].bookName<<setw(10)<<bo[i].bookID<<setw(10)<<bo[i].authorName<<setw(10)<<bo[i].bookISBN<<setw(10)<<" "<<bo[i].price<<setw(10)<<bo[i].bookYear;
                        }else{
                            fl<<setw(10)<< bo[i].bookName<<setw(10)<<bo[i].bookID<<setw(10)<<bo[i].authorName<<setw(10)<<bo[i].bookISBN<<setw(10)<<" "<<bo[i].price<<setw(10)<<bo[i].bookYear<<endl;
                        }
                    }
                    fl.close();
```

```
                }else if(option==2)
                {
                    cout<<"\n\t<<====Display all information in bookstore====>>" <<endl;
                    cout<<"\n\tName\t  ID\tauthorName\tISBN\tprice\t year"<<endl;
                    fl.open("Book.txt",ios::in);
                    int i=0;
                    while(!fl.eof())
                    {
                        fl>>bo[i].bookName>>bo[i].bookID>>bo[i].authorName>>bo[i].bookISBN>>bo[i].price>>bo[i].bookYear;
                        cout<<setw(12)<< bo[i].bookName<<setw(10)<<bo[i].bookID<<setw(14)<<bo[i].authorName<<setw(14)<<bo[i].bookISBN<<setw(12)<<" "<<bo[i].price<<setw(10)<<bo[i].bookYear<<endl;
                        i++;
                    }
                    fl.close();

                }else if(option==3)
                {
                    cout<<"\n\t<<====Enter bookstore ID you want to find====>>"<<endl;
                    cout<<"\n\tbooksotebyID==> ";
                    string id;
                    cin>>id;
                    cout<<"\n\tName\t  ID\tauthorName\tISBN\tprice\tyear"<<endl;
                    for(int i=0; i<=2; i++)
                    {
                        diplaybookstoreByID(i,id);
                    }
```

```
                }else if(option==4)
                {
                    int newbookYear,newPrice,isfind;
                    string newbookName,newAuthorname,newbookISBN,bookID,newId;
                    cout<<"\n\tEnter old id bookstore to update: ";cin>>bookID;
                    cout<<"\n\tEnter new id bookstore to update: ";cin>>newId;
                    cout<<"\n\tEnter new name of bookstore to update: ";cin>>newbookName;
                    cout<<"\n\tEnter new author name to update: ";cin>>newAuthorname;
                    cout<<"\n\tEnter new ISBN to update: ";cin>>newbookISBN;
                    cout<<"\n\tEnter new bookyear to update: ";cin>>newbookYear;
                    cout<<"\n\tEnter new price($) to update: ";cin>>newPrice;
                    cout<<"\n\t<<=====Display information after update====>>\n";
                    cout<<"\n\tName\t  ID\tauthorName\tISBN\tprice\tyear"<<endl;
                    for(int i=0; i<1; i++)
                    {
                        isfind=updatebyId(i,newId,newbookName,newAuthorname,newbookISBN,newbookYear,newPrice);
                        if(isfind==-1)
                        {
                            cout<<"\n\tnot success\n";
                        }else{
                            cout<<"\n\tThe product update successfully!";
                        }
                    }

                }else if(option==5)
                {
                    cout<<"\n\t<<=====Enter iD in bookstore you want to deleted====>>\n";
                    string id2;
                    cout<<"\n\tbookstoreIDdelete==>  ";
                    cin>>id2;
                    for(int i=0; i<=2; i++)
                    {
                        deletebookbyID(i,id2);
                    }
```

```
661                 }else if(option==6)
662                 {
663                     cout<<"\n\t<<====Enter name of product you want to research====>>\n\n";
664                     cout<<"\tname of book you want research==> ";
665                     string bookNamesearch;
666                     cin>>bookNamesearch;
667                     cout<<"\n\tName\t  ID\tauthorName\tISBN\tprice\tyear"<<endl;
668                     for(int i=0; i<=2; i++)
669                     {
670                         searchbook(i,bookNamesearch);
671                     }
672                     break;
673                 }
674             }
675         }else if(option==3)
676         {
677             displaymenuNumbertesting();
678             while(l<=3)
679             {
680                 cout<<"\n\n\tEnter option 1-3 of number testring: ";cin>>option;
681                 if(option==1)
682                 {
683                     int num;
684                     cout<<"\n\t\tEnter number of num: ";cin>>num;
685                     numbertestringisprimary(num);
686 
687                 }else if(option==2)
688                 {
689                     int num;
690                     cout<<"\n\t\tEnter number of num: ";cin>>num;
691                     numbertestringisperfect(num);
692                 }else if(option==3)
693                 {
694                     int num;
695                     cout<<"\n\t\tEnter number of num: ";cin>>num;
696                     numbertestringispalindrome(num);
697                     break;
698                 }
699             }
700 
```

```
701         }else if(option==4)
702         {
703             float a, b;
704             int n;
705             dislpaymenubasicmath();
706             cout<<"\n\n\tEnter number a: ";cin>>a;
707             cout<<"\n\tEnter number b: ";cin>>b;
708             BasicMath(a,b);
709         }else if(option==5)
710         {
711             dislpaymenumathsuit();
712             while(m<=4)
713             {
714                 cout<<"\n\n\tEnter option 1-4 of math suit: ";cin>>option;
715                 if(option==1)
716                 {
717                     int n;
718                     cout<<"\n\t\tEnter number of n: ";cin>>n;
719                     mathsuitltoN( n);
720 
721                 }else if(option==2)
722                 {
723                     int n;
724                     cout<<"\n\t\tEnter number of n: ";cin>>n;
725                     mathsuitaddNumber(n);
726                 }else if(option==3)
727                 {
728                     int n;
729                     cout<<"\n\t\tEnter number of n: ";cin>>n;
730                     mathsuitN(n);
731                 }else if(option==4)
732                 {
733                     int n;
734                     cout<<"\n\t\tEnter number of n: ";cin>>n;
735                     mathsuitprimary(n);
736                     break;
737                 }
738             }
```

```
737                 }
738             }
739         }else if(option==6)
740         {
741             dislpaymenuNumberConvertion();
742             while(n<=5)
743             {
744                 cout<<"\n\n\tEnter option 1-5 of number conversion: ";cin>>option;
745                 if(option==1)
746                 {
747                     long k;
748                     binarytodecimal( k);
749 
750                 }else if(option==2)
751                 {
752                     long k;
753                     decimaltobinary(k);
754 
755                 }else if(option==3)
756                 {
757                     long k;
758                     octaltodecimal(k);
759 
760                 }else if(option==4)
761                 {
762                     long k;
763                     decimaltooctal(k);
764 
765                 }else if(option==5)
766                 {
767                     long k;
768                     decimaltohex(k);
769                     break;
770                 }
771             }
772         }
773 
774     }
775 }
776 
```

```
          +====================================+
          ||<<<<<<   MENU OF PROJECT    >>>>>>||
          +====================================+
          ||I.Product Management               ||
          ||II.Book store Management           ||
          ||III.Number Testing                 ||
          ||IV.Basic Math                      ||
          ||V.Math suit computation            ||
          ||VI.Number Conversion               ||
          +====================================+

Choose option 1-6 of MENU OF PROJECT: 1

          +====================================+
          || I.   MENU PRODUCT MANAGEMENT    ||
          +====================================+
          ||1.Create product                   ||
          ||2.Display all product              ||
          ||3.Display a product by ID          ||
          ||4.Update product by ID             ||
          ||5.Delete product by ID             ||
          ||6.Search for a product             ||
          +====================================+

Enter option 1-6 of product: 1


||====Enter information of all products====||

Enter info of product<< 1 >>
Enter name of product: book
Enter number of product ID: p01
Enter number of price($): 12
Enter number of qty: 24

Enter info of product<< 2 >>
Enter name of product: food
Enter number of product ID: p02
Enter number of price($): 4
Enter number of qty: 50

Enter info of product<< 3 >>
Enter name of product: beer
Enter number of product ID: p03
Enter number of price($): 13
Enter number of qty: 30
```

```
   Enter option 1-6 of product: 2

   ||====Display all product====||

   Name      ID       price        qty

  book      p01          12         24
  food      p02           4         50
  beer      p03          13         30


   Enter option 1-6 of product: 3

   ||====Enter product ID you want to find====||
   productID==> p01

   Name       ID      price        qty

 book       p01        12          24


   Enter option 1-6 of product: 4

   ||====Display information update by id====||

   Enter old product ID to update: p03

   Enter new product ID to update: p09

   Enter new product name to update: drink

   Enter new product price($) to update: 12

   Enter new product qty to update: 24

   Name       ID      price        qty

drink       p09        12          24

   The product update successfully!
```

```
  Enter option 1-6 of product: 5

  ||====Enter  product iD  you want to deleted====||
  productIDdelete==>  p03
  Display information of product.

  Name      ID       price       qty

beer       p03        13         30

  Deleted

  Name      ID       price       qty

                       0         0


  Enter option 1-6 of product: 6

  ||====Enter name of product you want to research====||
  name of product you want research==> food

  Name       ID      price       qty

food       p02         4         50

          +==================================+
          ||<<<<<<   MENU OF PROJECT    >>>>>>||
          +==================================+
          ||I.Product Management             ||
          ||II.Book store Management         ||
          ||III.Number Testing               ||
          ||IV.Basic Math                    ||
          ||V.Math suit computation          ||
          ||VI.Number Conversion             ||
          +==================================+

  Choose option 1-6 of MENU OF PROJECT: 2
```

```
Choose option 1-6 of MENU OF PROJECT: 2

        +==================================+
        || II.      MENU BOOK STORE       ||
        +==================================+
        ||1.Create book store             ||
        ||2.Display all book store        ||
        ||3.Display a book store by ID    ||
        ||4.Update book store by ID       ||
        ||5.Delete book store by ID       ||
        ||6.Search for a book store       ||
        +==================================+

Enter option 1-6 of book store: 1


<<====Enter information of all bookstores====>>

Enter info in bookstore<< 1 >>
Enter name of books: khmer
Enter number id of bookstore: b01
Enter name author to make book: dalin
Enter name of bookstore title: happy
Enter number of price($): 12
Enter year to make book: 2019

Enter info in bookstore<< 2 >>
Enter name of books: math
Enter number id of bookstore: b02
Enter name author to make book: tonne
Enter name of bookstore title: read
Enter number of price($): 6
Enter year to make book: 2019

Enter info in bookstore<< 3 >>
Enter name of books: biolo
Enter number id of bookstore: b03
Enter name author to make book: povpop
Enter name of bookstore title: write
Enter number of price($): 7
Enter year to make book: 2020
```

```
    Enter option 1-6 of book store: 2

    <<====Display all information in bookstore====>>

    Name      ID    authorName      ISBN    price    year
   khmer       b01         dalin         happy            12      2019
    math       b02         tonne          read            6      2019
   biolo       b03        povpop         write            7      2020


    Enter option 1-6 of book store: 3

    <<====Enter bookstore ID you want to find====>>

    booksotebyID==> b01

    Name      ID    authorName      ISBN    price   year
 khmer       b01     dalin     happy        12      2019


    Enter option 1-6 of book store: 4

    Enter old id bookstore to update: b01

    Enter new id bookstore to update: b04

    Enter new name of bookstore to update: vusing

    Enter new author name to update: dareth

    Enter new ISBN to update: happy

    Enter new bookyear to update: 2021

    Enter new price($) to update: 7

    <<====Display information after update====>>

    Name      ID    authorName      ISBN    price   year
vusing       b04    dareth     happy          7      2021

    The product update successfully!
```

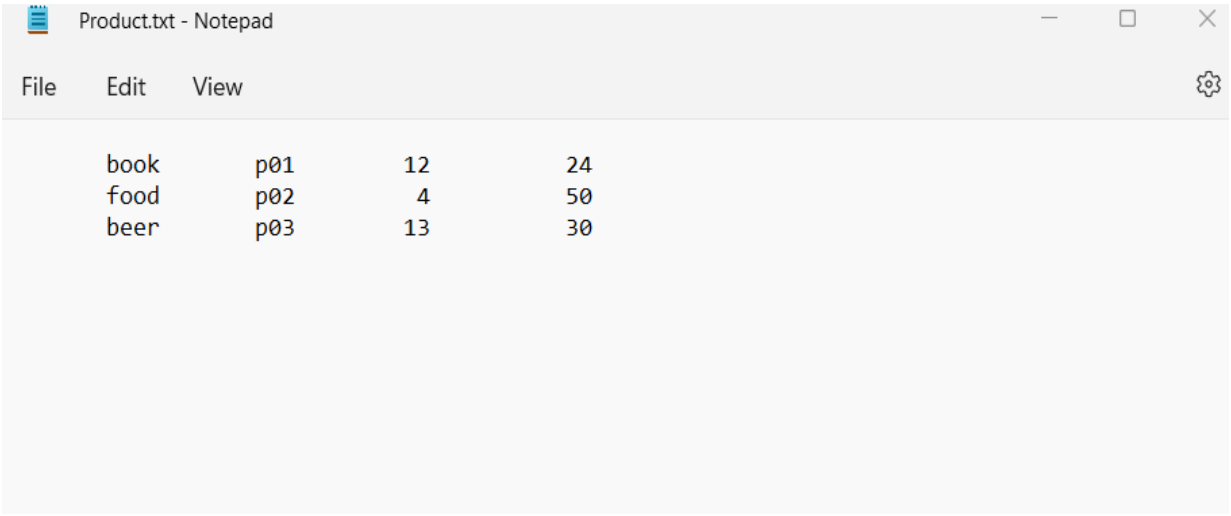
```
        Enter option 1-6 of book store: 5

        <<====Enter iD in bookstore you want to deleted====>>

        bookstoreIDdelete==>  b01
        <<==Display information of all id to delete

        Name      ID    authorName      ISBN    price   year
    khmer       b01     dalin     happy          12      2019

        Deleted

        Name      ID    authorName      ISBN    price   year
                                            0         0


        Enter option 1-6 of book store: 6

        <<====Enter name of product you want to research====>>

        name of book you want research==>
math

        Name      ID    authorName      ISBN    price   year
     math       b02     tonne      read          6      2019
```

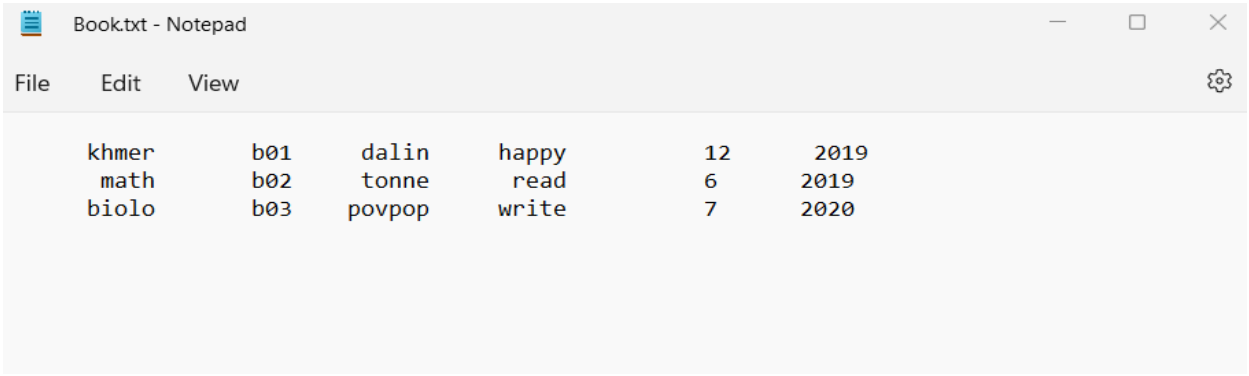
```
            +====================================+
            ||<<<<<<   MENU OF PROJECT    >>>>>>||
            +====================================+
            ||I.Product Management               ||
            ||II.Book store Management           ||
            ||III.Number Testing                 ||
            ||IV.Basic Math                      ||
            ||V.Math suit computation            ||
            ||VI.Number Conversion               ||
            +====================================+

     Choose option 1-6 of MENU OF PROJECT: 3

            +====================================+
            || III.     MENU NUMBER TESTING     ||
            +====================================+
            ||1.Check if its a primary number    ||
            ||2.Check if its a perfect number    ||
            ||3.Check if its a palindrome number||
            +====================================+

     Enter option 1-3 of number testring: 1

            Enter number of num: 7

            The value of number is primary number

     Enter option 1-3 of number testring: 2

            Enter number of num: 6

            The value of number is not perfect number

     Enter option 1-3 of number testring: 3

            Enter number of num: 1221

            The value of num is palindrome number
```

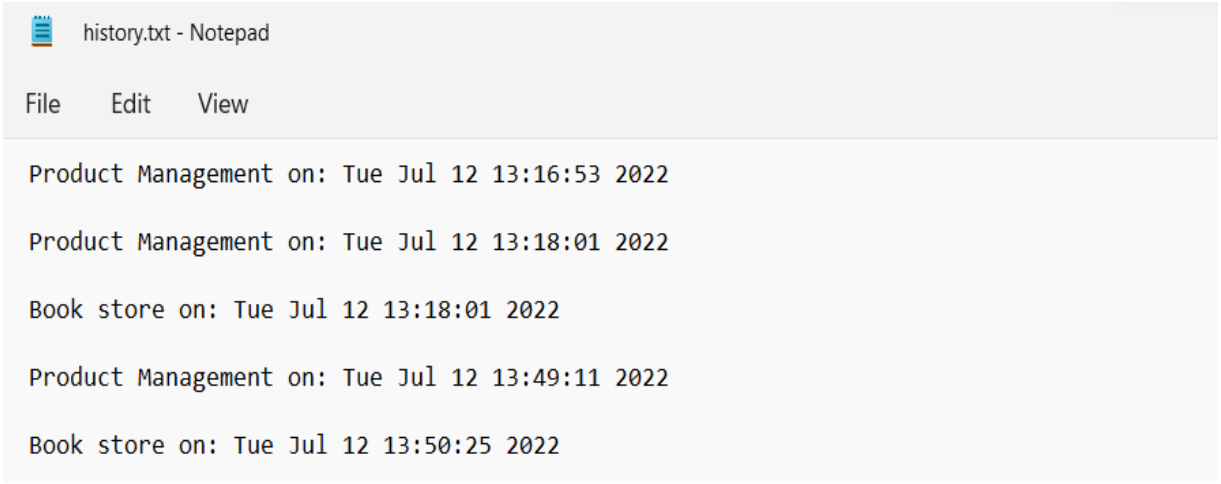
```
        +====================================+
        ||<<<<<<   MENU OF PROJECT    >>>>>>||
        +====================================+
        ||I.Product Management               ||
        ||II.Book store Management           ||
        ||III.Number Testing                 ||
        ||IV.Basic Math                      ||
        ||V.Math suit computation            ||
        ||VI.Number Conversion               ||
        +====================================+

Choose option 1-6 of MENU OF PROJECT: 4

        +====================================+
        || IV.       MENU BASIC MATH       ||
        +====================================+
        ||1.Summation of all numbers        ||
        ||2.Subtraction of all numbers      ||
        ||3.Multiplication of all numbers   ||
        ||4.Division of all numbers         ||
        +====================================+

Enter number a: 9.0

Enter number b: 3.0

        Summation all numbers is: 12
        Subtraction all numbers is: 6
        Multiplication all numbers is: 27
        Division all numbers is: 3
```

```
        +====================================+
        ||<<<<<<   MENU OF PROJECT    >>>>>>||
        +====================================+
        ||I.Product Management              ||
        ||II.Book store Management          ||
        ||III.Number Testing                ||
        ||IV.Basic Math                     ||
        ||V.Math suit computation           ||
        ||VI.Number Conversion              ||
        +====================================+

Choose option 1-6 of MENU OF PROJECT: 5

        +==================================+
        ||  V.      MENU MATH SUIT        ||
        +==================================+
        ||  1.1+2+3+....+n                ||
        ||  2.1+3+5+....+n                ||
        ||  3.1^2+2^2+....+n^2            ||
        ||  4.Sum primary 1 to n          ||
        +==================================+

Enter option 1-4 of math suit: 1

        Enter number of n: 5

        Sum of all numbers: 1+2+3+...+n= 15


Enter option 1-4 of math suit: 2

        Enter number of n: 5

        Sum of all numbers: 1+3+5+...+n= 9


Enter option 1-4 of math suit: 3

        Enter number of n: 5

        Sum of all numbers: 1^1+2^2+...+n^2=  55


Enter option 1-4 of math suit: 4

        Enter number of n: 5

        Sum all primary numbers 1 to n= 10
```

```
        +====================================+
        ||<<<<<<   MENU OF PROJECT    >>>>>>||
        +====================================+
        ||I.Product Management               ||
        ||II.Book store Management           ||
        ||III.Number Testing                 ||
        ||IV.Basic Math                      ||
        ||V.Math suit computation            ||
        ||VI.Number Conversion               ||
        +====================================+

Choose option 1-6 of MENU OF PROJECT: 6

        +==================================+
        ||  VI.  MENU NUMBER CONVERTION   ||
        +==================================+
        ||  1.Base 2 to 10                ||
        ||  2.Base 10 to 2                ||
        ||  3.Base 8 to 10                ||
        ||  4.Base 10 to 8                ||
        ||  5.Base 10 to 16               ||
        +==================================+

Enter option 1-5 of number conversion: 1

        Enter number base 2: 1101

The number in binary = 13 decimal number


Enter option 1-5 of number conversion: 2

        Enter number decimal: 13

The number in decimal = 1101 binary number


Enter option 1-5 of number conversion: 3

        Enter number octal: 134

The number in octal = 92 decimal number


Enter option 1-5 of number conversion: 4

        Enter number decimal: 92

The number in decimal = 134 octal number


Enter option 1-5 of number conversion: 5

Enter Decimal Number :123

Octal Number to Decimal Number is: 7B
```


Product.txt - Notepad
File Edit View
book p01 12 24
food p02 4 50
beer p03 13 30


Book.txt - Notepad
File Edit View
khmer b01 dalin happy 12 2019
math b02 tonne read 6 2019
biolo b03 povpop write 7 2020


history.txt - Notepad
File Edit View
Product Management on: Tue Jul 12 13:16:53 2022
Product Management on: Tue Jul 12 13:18:01 2022
Book store on: Tue Jul 12 13:18:01 2022
Product Management on: Tue Jul 12 13:49:11 2022
Book store on: Tue Jul 12 13:50:25 2022