Lab 4 Tasks

24K-0576

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Task 1:

#include <iostream>

#include <string>

using namespace std;

class Book{

    private:

    string title;

    float price;

    int \*stock;

    public:

    Book() {

        title="Unknown";

        price=0.0;

        stock=new int(30);

    }

    void update(string t,float p,int s){

        title=t;

        price=p;

        \*stock=s;

    }

    void purchase(int quan){

        if (quan>\*stock){

            cout<<"not enough books";

            return;

        } else{

            \*stock =\*stock-quan;

            cout<<quan<<" many books have been purchased\n";

        }

        if (\*stock<5){

            cout<<"warning- low stock\n";

        }

    }

    void display(){

        cout<<"book: "<<title<<" price: "<<price<<" stock: "<<\*stock<<endl;

    }

};

int main(){

    Book b1;

}

Task 2:

#include <iostream>

#include <string>

using namespace std;

class Book{

    private:

    string title;

    float price;

    int \*stock;

    public:

    Book() {

        title="Unknown";

        price=0.0;

        stock=new int(30);

    }

    Book(string t,float p,int s){

        title=t;

        price=p;

        stock=new int(s);

    }

    ~Book(){

        delete stock;

    }

    void update(string t,float p,int s){

        cout<<"tital is update from "<<title<<" to "<<t;

        cout<<"price is update from "<<price<<" to "<<p;

        cout<<"stock is update from "<<stock<<" to "<<s;

        title=t;

        price=p;

        \*stock=s;

    }

    float purchase(int quan){

        float cost;

        if (quan>\*stock){

            cout<<"not enough books, maximum available quantity is: "<<\*stock;

            return 0;

        } else{

            \*stock =\*stock-quan;

            cost= price\*quan;

            cout<<quan<<" books have been purchased\n";

            cout<<"total cost: "<<cost<<endl;

            return cost;

        }

        if (\*stock<5){

            cout<<"warning- low stock\n";

        }

    }

    void applyDiscount(int quan,float cost){

        float finalCost;

        if(quan>5 &&quan<=10){

            finalCost=cost\*0.95;

            cout<<"final cost is: "<<finalCost<<endl;

        } else if(quan>10){

            finalCost=cost\*0.90;

            cout<<"final cost is: "<<finalCost<<endl;

        } else{

            cout<<"discount not applicable\n";

        }

    }

    void display(){

        cout<<"book: "<<title<<" price: "<<price<<" stock: "<<\*stock<<endl;

    }

};

int main(){

    Book b1("matilda",49.9,20);

    b1.applyDiscount(6,b1.purchase(6));

}

Output :

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AI-generated content may be incorrect.

Task 3:

#include <iostream>

#include <string>

using namespace std;

class Book{

    private:

    string \*title;

    float \*price;

    int \*stock;

    public:

    Book() {

        title = new string("Unknown");

        price = new float(0.0);

        stock=new int(30);

    }

    Book(string t,float p,int s){

        title = new string(t);

        price = new float(p);

        stock=new int(s);

        cout<<"changes saved\n";

    }

    //copy constructor

    Book(const Book &b) {

        cout<<"custom copy constructor\n";

        title = new string(\*b.title);

        price = new float(\*b.price);

        stock = new int(\*b.stock);

    }

    ~Book(){

        delete title;

        delete price;

        delete stock;

    }

    void update(string t,float p,int s){

        cout<<"title is update from "<<\*title<<" to "<<t<<endl;;

        cout<<"price is update from "<<\*price<<" to "<<p<<endl;;

        cout<<"stock is update from "<<\*stock<<" to "<<s<<endl;;

        \*title=t;

        \*price=p;

        \*stock=s;

    }

    float purchase(int quan){

        float cost;

        if (quan>\*stock){

            cout<<"not enough books, maximum available quantity is: "<<\*stock;

            return 0;

        } else{

            \*stock =\*stock-quan;

            cost= \*price\*quan;

            cout<<quan<<" books have been purchased\n";

            cout<<"total cost: "<<cost<<endl;

            return cost;

        }

        if (\*stock<5){

            cout<<"warning- low stock\n";

        }

    }

    void applyDiscount(int quan,float cost){

        float finalCost;

        if(quan>5 &&quan<=10){

            finalCost=cost\*0.95;

            cout<<"final cost is: "<<finalCost<<endl;

        } else if(quan>10){

            finalCost=cost\*0.90;

            cout<<"final cost is: "<<finalCost<<endl;

        } else{

            cout<<"discount not applicable\n";

        }

    }

    void display(){

        cout<<"book: "<<\*title<<" price: "<<\*price<<" stock: "<<\*stock<<endl;

    }

};

int main(){

    Book b1("matilda",49.9,20);

    Book b2(b1);

    b1.applyDiscount(6,b1.purchase(6));

    cout << "\nOriginal Book:\n";

    b1.display();

    cout << "\nCopied Book:\n";

    b2.display();

    b2.update("harry potter",99.9,15);

    cout<<"\nupdated copied book:\n";

    b2.display();

}

Output :

A screen shot of a computer

AI-generated content may be incorrect.

Task 4:

#include <iostream>

#include <string>

using namespace std;

class Book{

    private:

    string \*title;

    float \*price;

    int \*stock;

    public:

    Book() {

        title = new string("Unknown");

        price = new float(0.0);

        stock=new int(30);

    }

    Book(string t,float p,int s){

        title = new string(t);

        price = new float(p);

        stock=new int(s);

        cout<<"changes saved\n";

    }

    Book(const Book &b) {

        title = new string(\*b.title);

        price = new float(\*b.price);

        stock = new int(\*b.stock);

    }

    ~Book(){

        delete title;

        delete price;

        delete stock;

    }

    void update(string t,float p,int s){

        cout<<"title is update from "<<\*this->title<<" to "<<t<<endl;;

        cout<<"price is update from "<<\*this->price<<" to "<<p<<endl;;

        cout<<"stock is update from "<<\*this->stock<<" to "<<s<<endl;;

        \*title=t;

        \*price=p;

        \*stock=s;

    }

    void purchase(int quan){

        float discountPrice;

        if (quan>5 &&quan<=10){

            discountPrice=(\*price)\*quan\*0.95;

            cout<<"since you have bulked purchased, you get a discount of 5 %:\n";

            cout<<"cost before discount: "<<(\*this->price)\*quan<<"\ncost after discount: "<<discountPrice<<endl;

            \*stock-=quan;

        }else if (quan>10){

            discountPrice=(\*price)\*quan\*0.90;

            cout<<"since you have bulked purchased, you get a discount of 10 %:\n";

            cout<<"cost before discount: "<<(\*this->price)\*quan<<"\ncost after discount: "<<discountPrice<<endl;

            \*stock-=quan;

        } else{

            cout<<"no discount, final cost is: "<<\*this->price;

        }

    }

    void display(){

        cout<<"book: "<<\*title<<" price: "<<\*price<<" stock: "<<\*stock<<endl;

    }

};

int main(){

    Book b1("matilda",49.9,20);

    Book b2(b1);

    b1.purchase(11);

    b1.display();

}

Output :

A screen shot of a black background

AI-generated content may be incorrect.

Task 5:

#include <iostream>

#include <string>

using namespace std;

class Book{

    private:

    static int bcount;

    int bookID;

    string \*title;

    float \*price;

    int \*stock;

    public:

    Book() : bookID(bcount++){

        title = new string("Unknown");

        price = new float(0.0);

        stock=new int(30);

    }

    Book(string t,float p,int s):bookID(bcount++){

        title = new string(t);

        price = new float(p);

        stock=new int(s);

        cout<<"changes saved\n";

    }

    Book(const Book &b):bookID(bcount++) {

        title = new string(\*b.title);

        price = new float(\*b.price);

        stock = new int(\*b.stock);

    }

    ~Book(){

        delete title;

        delete price;

        delete stock;

    }

    void update(string t,float p,int s){

        cout<<"title is update from "<<\*this->title<<" to "<<t<<endl;;

        cout<<"price is update from "<<\*this->price<<" to "<<p<<endl;;

        cout<<"stock is update from "<<\*this->stock<<" to "<<s<<endl;;

        \*title=t;

        \*price=p;

        \*stock=s;

    }

    void purchase(int quan){

        float discountPrice;

        if (quan>5 &&quan<=10){

            discountPrice=(\*price)\*quan\*0.95;

            cout<<"since you have bulked purchased, you get a discount of 5 %:\n";

            cout<<"cost before discount: "<<(\*this->price)\*quan<<"\ncost after discount: "<<discountPrice<<endl;

            \*stock-=quan;

        }else if (quan>10){

            discountPrice=(\*price)\*quan\*0.90;

            cout<<"since you have bulked purchased, you get a discount of 10 %:\n";

            cout<<"cost before discount: "<<(\*this->price)\*quan<<"\ncost after discount: "<<discountPrice<<endl;

            \*stock-=quan;

        } else{

            cout<<"no discount, final cost is: "<<\*this->price;

        }

    }

    void display(){

        cout<<"book title: "<<\*title<<" Book id: "<<bookID<<" price: "<<\*price<<" stock: "<<\*stock<<endl;

    }

};

int Book:: bcount=0;

int main(){

    Book b1("matilda",49.9,20);

    Book b2("harry potter",60,30);

    b1.purchase(11);

    b1.display();

    b2.display();

}

Output :

A screen shot of a computer

AI-generated content may be incorrect.