Jawad Ahmed
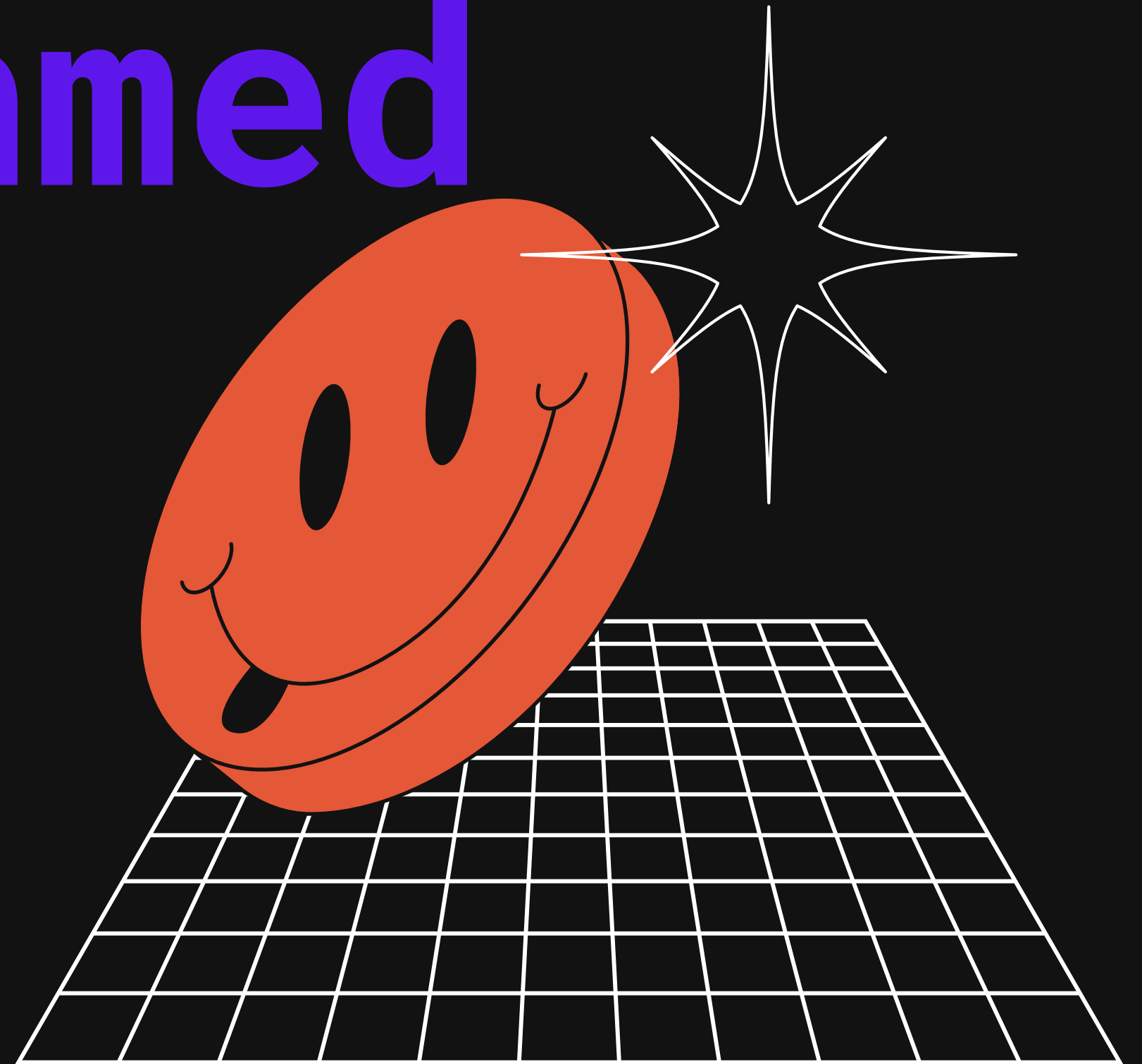
Roll No: 20P-0165

```cpp
#include <iostream>
using namespace std;

class Account{
    private:
        int accountNumber;
        double balance;
    public:
        int Get_Account_Number();
        double Get_Balance();
        void Set_Balance(double balance);
        void Credit(double amount);
        void Debit(double amount);
        void Print();
        Account(int accountNumber, double balance);
};

int Account::Get_Account_Number(){
    return accountNumber;
}

double Account::Get_Balance(){
    return balance;
}

void Account::Set_Balance(double balance){
    this->balance = balance;
}

void Account::Credit(double amount){
    balance = balance + amount;
}

void Account::Debit(double amount){

    if (balance >= amount){
        cout << "The Deducted Amount from your balance is: " << amount
        << " and your new balance is: " << balance - amount << endl;
        this->balance = balance - amount;
    }

    else{
        cout << "Your Current Balance " << balance << "  and is lesser then your given amount " << endl;
    }
}

void Account::Print(){
    cout << "Account No:   "   << accountNumber << endl;
    cout << "Your Balance: " << balance       << endl;
}

Account::Account(int accountNumber, double balance){
    this->accountNumber = accountNumber;
    this->balance       = balance;
}

int main(){
    int amount = 0;
    Account *account;
    cout << "Line 1: Calling the Default Construct \n";        // Line 1
    Account a(200165, 4554.44);
    account = &a;
    cout << "Line 2: Printing the Account Number and Balance \n"; // Line 2
    account->Print();

    cout << "Line 3: Debiting the Amount of 5000000" << endl;   // Line 3
    account->Debit(5000000);

    cout << "Line 4 : Adding More Amount to my Balance" << endl;  // Line 4
    account->Credit(500000);

    cout << "Line 5 : Again Adding some more amount so we can debit" << endl; // Line 5
    account->Debit(500000);
    return 0;
}
```

```
1  Line 1: Calling the Default Construct
2  Line 2: Printing the Account Number and Balance
3  Account No:   200165
4  Your Balance: 4554.44
5  Line 3: Debiting the Amount of 5000000
6  Your Current Balance 4554.44  and is lesser then your given amount
7  Line 4 : Adding More Amount to my Balance
8  Line 5 : Again Adding some more amount so we can debit
9  The Deducted Amount from your balance is: 500000 and your new balance is: 4554.44
```

```cpp
#include <iostream>
#include <string>

using namespace std;

// Product Class
class Product{
    private:
        float regularPrice;
        float discount;
    public:
        float GetPrice();
        void SetPrice(float);
        void SetDiscount(float);
        float GetDiscount();
        float DisplayBill(float regularPrice, float discount);
};

void Product::SetPrice(float regularPrice){
    if (regularPrice > 0)
        this->regularPrice = regularPrice;
    else
        this->regularPrice = 0;
}

void Product::SetDiscount(float discount){
        this->discount = discount;
}

float Product::GetDiscount(){
    return discount;
}

float Product::GetPrice(){
    return regularPrice;
}

float Product::DisplayBill(float regularPrice, float discount){
    return regularPrice * discount;
}
// End of Product Class

//  Book Child Class

class Book : public Product{
    private:
        string authorName;
        string bookName;
    public:
        void Set_Author_Book_Name(string, string);
        string Get_Author_Name();
        string Get_Book_Name();
};

void Book::Set_Author_Book_Name(string authorName, string bookName){
    this->authorName = authorName;
    this->bookName = bookName;
}

string Book::Get_Author_Name(){
    return authorName;
}
```

```
1   string Book::Get_Book_Name(){
2       return bookName;
3   }
4
5   // End of Book Child
6
7   // Electronics Class
8   class Electronics : public Product{
9       private:
10          string manufacturerName;
11      public:
12          void Set_ManuFacturer_Name(string);
13          string Get_ManuFacturer_Name();
14  };
15
16  void Electronics::Set_ManuFacturer_Name(string manufacturerName){
17      this->manufacturerName = manufacturerName;
18  }
19
20  string Electronics::Get_ManuFacturer_Name(){
21      return manufacturerName;
22  }
23
24  class MP3Player : public Electronics{
25      private:
26          string color;
27          float capacity;
28      public:
29          void Set_Color_Capacity(string , float);
30          string GetColor();
31          float GetCapacity();
32  };
33
34  void MP3Player::Set_Color_Capacity(string color, float capacity){
35      this->color    = color;
36      this->capacity = capacity;
37  }
38
39  string MP3Player::GetColor(){
40      return color;
41  }
42
43  float MP3Player::GetCapacity(){
44      return capacity;
45  }
46
47  // TV Class
48  class TV : public Electronics{
49      private:
50          int televisionSize;
51      public:
52          void Set_Television_Size(int);
53          int Get_Television_Size();
54  };
55
56  void TV::Set_Television_Size(int televisionSize){
57      this->televisionSize = televisionSize;
58  }
59
60  int TV::Get_Television_Size(){
61      return televisionSize;
62  }
```

CODE NO 2

```cpp
int main(){
    cout << "\n=============================  WELCOME THE BOOK SHOP  ====================================\n\n\n";
    // Book Child
    float regularPrice = 0.0;
    float discount = 0.0;
    Book b;
    b.Set_Author_Book_Name("DSMALIK", "CPP");
    cout << "         The Book Author Name is            :  " << b.Get_Author_Name() << endl;
    cout << "         The Book Name is                   :  " << b.Get_Book_Name() << endl;
    b.SetPrice(505.5);                  // Setting Price to 505.5
    regularPrice = b.GetPrice();
    b.SetDiscount(0.50);
    discount = b.GetDiscount();
    cout << "         The Actual Amount of the Book is : " << " " << regularPrice << " "
    << "\n        After Discount the Amount is    : " << " " << b.DisplayBill(regularPrice, discount) << endl;
    // End of Book Child
    cout << "\n=============================  THANKS FOR COMING TO BOOK SHOP  ====================================\n\n\n";
    // Start of Electronics Class
    cout << "\n=============================    WELCOME THE ELECTRONICS SHOP  ====================================\n\n\n";
    cout << "\n=============================           MP3 Class         ====================================\n\n\n";
    regularPrice = 0.0;
    discount = 0.0;
    MP3Player mp3;
    mp3.Set_ManuFacturer_Name("Jawad");
    cout << "         This MP3 Manufacturer Name is       : " << mp3.Get_ManuFacturer_Name() << endl;
    mp3.Set_Color_Capacity("Red", 5.5);
    cout << "         The MP3 has a Color                 : " << mp3.GetColor()            << endl;
    cout << "         The Capacity of the MP3 is          : " << mp3.GetCapacity() << endl;
    mp3.SetPrice(555.5);
    regularPrice = mp3.GetPrice();
    mp3.SetDiscount(0.50);
    discount = mp3.GetDiscount();

    cout << "         The Price of this MP3 is          : " <<  regularPrice  << "\n        After Discount Price of the MP3 is  : "
    << mp3.DisplayBill(regularPrice, discount) << endl;
    cout << "\n=============================  THANKS FOR COMING TO MP3 SHOP   ====================================\n\n\n";

    cout << "\n=============================  THANKS FOR COMING TO TV SHOP  ====================================\n\n\n";
    regularPrice = 0.0;
    discount = 0.0;
    TV t;
    t.Set_ManuFacturer_Name("Rustam");
    cout << "         The ManuFacturer of this TV is  : " << t.Get_ManuFacturer_Name() << endl;
    t.Set_Television_Size(7);
    cout << "         The Television is Size is       : " << t.Get_Television_Size()  << "inch" << endl;
    t.SetPrice(25000.0);
    regularPrice = t.GetPrice();
    t.SetDiscount(0.60);
    discount = t.GetDiscount();
    cout << "         The Orignal Price of this TV is : " << regularPrice << "\n         After Discount the Price is    : "
    << t.DisplayBill(regularPrice, discount) << endl << endl;
    return 0;
}
```

```
========================= WELCOME THE BOOK SHOP    =====================================


        The Book Author Name is          :  DSMALIK
        The Book Name is                 :  CPP
        The Actual Amount of the Book is :  505.5
        After Discount the Amount is     :  252.75

========================  THANKS FOR COMING TO BOOK SHOP  ==============================



======================== WELCOME THE ELECTRONICS SHOP   ===============================



========================            MP3 Class          ===============================


        This MP3 Manufacturer Name is        : Jawad
        The MP3 has a Color                  : Red
        The Capacity of the MP3 is           : 5.5
        The Price of this MP3 is             : 555.5
        After Discount Price of the MP3 is   : 277.75

========================   THANKS FOR COMING TO MP3 SHOP   =============================



========================   THANKS FOR COMING TO TV SHOP   =============================


        The ManuFacturer of this TV is  : Rustam
        The Television is Size is        : 7inch
        The Orignal Price of this TV is : 25000
        After Discount the Price is      : 15000
```

Jawad Ahmed

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