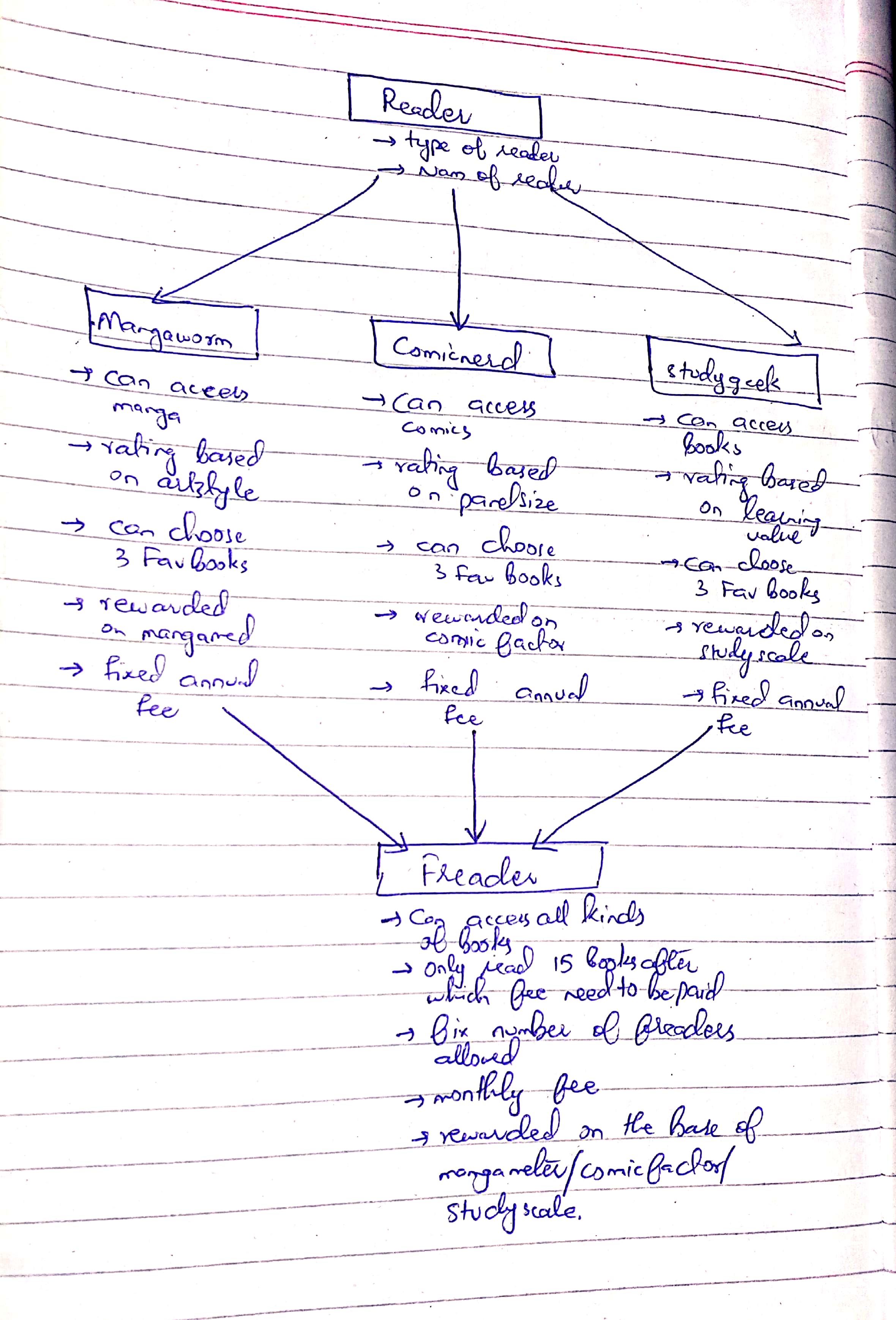
**Task 01:**

****

**Task 02)**

**// Implementation of each requirement of the problem has been described with comments**

**#include <iostream>**

**#include <stdio.h>**

**#include <stdlib.h>**

**#include <string.h>**

**using namespace std;**

**class Reader**

**{ //This is the baseclass this will only hold only the name, favorite books and reader type of the reader. It will also keep a count of the number of freeders so that their numbers can be kept with in the limit**

**public:**

**string reader\_name;**

**string reader\_type;**

**string favorite\_books[3];**

**int static num\_of\_freaders;**

**Reader(string reader\_name, string reader\_type)**

**{**

**this->reader\_name = reader\_name;**

**this->reader\_type = reader\_type;**

**//Freader counting mechanism**

**if (reader\_type == "Freader")**

**{**

**num\_of\_freaders++;**

**if (num\_of\_freaders > 5)**

**{**

**cout << "Maximum number of freaders reached you cannot make another freader\n";**

**delete this;**

**}**

**}**

**}**

**};**

**int Reader ::num\_of\_freaders = 0;**

**//1st inherent class**

**class Mangaworm : virtual public Reader**

**{**

**public:**

**char set1, set2, set3;**

**int num\_of\_manga\_books;**

**float annual\_fee;**

**//Structure to hold the info about a book**

**struct Mangabook**

**{**

**string Mangabook\_name;**

**string Mangabook\_author;**

**string artsyle;**

**} \* Mangabook\_lib;**

**Mangaworm(string reader\_name, float annual\_fee) : Reader(reader\_name, "Mangaworm")**

**{**

**this->annual\_fee = annual\_fee;**

**cout << "How many Mangas are avialable in the store?\n";**

**fflush(stdin);**

**cin >> num\_of\_manga\_books;**

**//Form here on I would take the input of books form the user which will be available in the Store's library, the user can select these books.**

**//I know this isn't an ideal solution since an ideal solution would've been a database for which filing was required and since we haven't learnt filing so far hence I have to individually take the input**

**//of the books available from the user. The code from here to line number 67 will be used to take input of books from the user about the name of the book, its author as well as the rating of the book so that the reader can also rate it.**

**Mangabook \*Mangabook\_lib = new Mangabook[num\_of\_manga\_books];**

**for (int i = 0; i < num\_of\_manga\_books; i++)**

**{**

**cout << "Enter the name of Manga no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Mangabook\_lib[i].Mangabook\_name);**

**cout << "Enter the name of author of Manga no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Mangabook\_lib[i].Mangabook\_author);**

**cout << "Rate Manga no." << i + 1 << " on the basis of artsyle.\n";**

**fflush(stdin);**

**getline(cin, Mangabook\_lib[i].artsyle);**

**}**

**}**

**Mangaworm(string reader\_name) : Reader(reader\_name, "Freader")**

**{**

**cout << "How many Mangas are avialable in the store?\n";**

**fflush(stdin);**

**cin >> num\_of\_manga\_books;**

**//Form here on I would take the input of books form the user which will be available in the Store's library, the user can select these books.**

**//I know this isn't an ideal solution since an ideal solution would've been a database for which filing was required and since we haven't learnt filing so far hence I have to individually take the input**

**//of the books available from the user. The code from here to line number 67 will be used to take input of books from the user about the name of the book, its author as well as the rating of the book so that the reader can also rate it.**

**Mangabook \*Mangabook\_lib = new Mangabook[num\_of\_manga\_books];**

**for (int i = 0; i < num\_of\_manga\_books; i++)**

**{**

**cout << "Enter the name of Manga no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Mangabook\_lib[i].Mangabook\_name);**

**cout << "Enter the name of author of Manga no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Mangabook\_lib[i].Mangabook\_author);**

**cout << "Rate Manga no." << i + 1 << " on the basis of artsyle.\n";**

**fflush(stdin);**

**getline(cin, Mangabook\_lib[i].artsyle);**

**}**

**}**

**//This function enables the user to set his favorite books, the array of these books is defined in the base class**

**void setFavbooks(string book1, string book2, string book3)**

**{**

**for (int i = 0; i < num\_of\_manga\_books; i++)**

**{**

**if (book1 == Mangabook\_lib[i].Mangabook\_name)**

**{**

**favorite\_books[0] = book1;**

**cout << "Book 01 added in Favbook list\n";**

**set1 = 'y';**

**}**

**else if (i == num\_of\_manga\_books)**

**{**

**cout << "The first book you entered does not exist\n";**

**set1 = 'n';**

**}**

**}**

**for (int i = 0; i < num\_of\_manga\_books; i++)**

**{**

**if (book2 == Mangabook\_lib[i].Mangabook\_name)**

**{**

**favorite\_books[1] = book2;**

**cout << "Book 02 added in Favbook list\n";**

**set2 = 'y';**

**}**

**else if (i == num\_of\_manga\_books)**

**{**

**set2 = 'n';**

**cout << "The second book you entered does not exist\n";**

**}**

**}**

**for (int i = 0; i < num\_of\_manga\_books; i++)**

**{**

**if (book3 == Mangabook\_lib[i].Mangabook\_name)**

**{**

**favorite\_books[2] = book3;**

**cout << "Book 03 added in Favbook list\n";**

**set3 = 'y';**

**}**

**else if (i == num\_of\_manga\_books)**

**{**

**cout << "The third book you entered does not exist\n";**

**set3 = 'n';**

**}**

**}**

**}**

**//This function displays the info about a reader**

**void Display\_info\_about\_reader()**

**{**

**cout << "The name of the reader is " << reader\_name << ".\n";**

**cout << "The reader type is " << reader\_type << ".\n";**

**cout << "The annaul fee the reader pays is " << annual\_fee << ".\n"**

**<< endl;**

**Display\_Fav\_Books();**

**}**

**//This function displays the Favorite books of the reader**

**void Display\_Fav\_Books()**

**{**

**cout << "The list of Favorite books of " << reader\_name << " is:\n";**

**if (set1 == 'y')**

**cout << "Book: " << favorite\_books[0] << ".\n";**

**if (set2 == 'y')**

**cout << "Book: " << favorite\_books[1] << ".\n";**

**if (set3 == 'y')**

**cout << "Book: " << favorite\_books[2] << ".\n";**

**}**

**//This function allows the user to select a book for reading**

**void selectbooks(string book1)**

**{**

**for (int i = 0; i < num\_of\_manga\_books; i++)**

**{**

**if (book1 == Mangabook\_lib[i].Mangabook\_name)**

**{**

**cout << "Book selected\n";**

**}**

**else if (i == num\_of\_manga\_books)**

**cout << "No such book exists try again!\n";**

**}**

**}**

**//This function serves as the Mangameter and determines whether the user will be awarded or not.**

**void Mangameter\_val(float val)**

**{**

**if (val > 50 && val <= 100)**

**{**

**cout << "Your mangameter value is greater than 50 you'll get 10% discount.\n";**

**}**

**else**

**cout << "Sorry no discount available for your current rating\n.";**

**}**

**};**

**class Comicnerd : virtual public Reader**

**{**

**public:**

**char set1, set2, set3;**

**int num\_of\_comin\_books;**

**float annual\_fee;**

**struct Comicbook**

**{**

**string Comicbook\_name;**

**string Comicbook\_author;**

**string panelsize;**

**} \* Cominbook\_lib;**

**Comicnerd(string reader\_name, float annual\_fee) : Reader(reader\_name, "Comicnerd")**

**{**

**this->annual\_fee = annual\_fee;**

**cout << "How many comics are available in the store?\n";**

**fflush(stdin);**

**cin >> num\_of\_comin\_books;**

**//Form here on I would take the input of books form the user which will be available in the Store's library, the user can select these books.**

**//I know this isn't an ideal solution since an ideal solution would've been a database for which filing was required and since we haven't learnt filing so far hence I have to individually take the input**

**//of the books available from the user. The code from here to line number 67 will be used to take input of books from the user about the name of the book, its author as well as the rating of the book so that the reader can also rate it.**

**Comicbook \*Cominbook\_lib = new Comicbook[num\_of\_comin\_books];**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**cout << "Enter the name of Comic no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Cominbook\_lib[i].Comicbook\_name);**

**cout << "Enter the name of author of Comic no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Cominbook\_lib[i].Comicbook\_name);**

**cout << "Rate Comic no." << i + 1 << " on the basis of Panel size.\n";**

**fflush(stdin);**

**getline(cin, Cominbook\_lib[i].panelsize);**

**}**

**}**

**Comicnerd(string reader\_name) : Reader(reader\_name, "Freader")**

**{**

**cout << "How many comics are available in the store?\n";**

**fflush(stdin);**

**cin >> num\_of\_comin\_books;**

**//Form here on I would take the input of books form the user which will be available in the Store's library, the user can select these books.**

**//I know this isn't an ideal solution since an ideal solution would've been a database for which filing was required and since we haven't learnt filing so far hence I have to individually take the input**

**//of the books available from the user. The code from here to line number 67 will be used to take input of books from the user about the name of the book, its author as well as the rating of the book so that the reader can also rate it.**

**Comicbook \*Cominbook\_lib = new Comicbook[num\_of\_comin\_books];**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**cout << "Enter the name of Comic no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Cominbook\_lib[i].Comicbook\_name);**

**cout << "Enter the name of author of Comic no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Cominbook\_lib[i].Comicbook\_name);**

**cout << "Rate Comic no." << i + 1 << " on the basis of Panel size.\n";**

**fflush(stdin);**

**getline(cin, Cominbook\_lib[i].panelsize);**

**}**

**}**

**//This function enables the user to set his favorite books, the array of these books is defined in the base class**

**void setFavbooks(string book1, string book2, string book3)**

**{**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**if (book1 == Cominbook\_lib[i].Comicbook\_name)**

**{**

**favorite\_books[0] = book1;**

**cout << "Book 01 added in Favbook list\n";**

**set1 = 'y';**

**}**

**else if (i == num\_of\_comin\_books)**

**{**

**cout << "The first book you entered does not exist\n";**

**set1 = 'n';**

**}**

**}**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**if (book2 == Cominbook\_lib[i].Comicbook\_name)**

**{**

**favorite\_books[1] = book2;**

**cout << "Book 02 added in Favbook list\n";**

**set2 = 'y';**

**}**

**else if (i == num\_of\_comin\_books)**

**{**

**set2 = 'n';**

**cout << "The second book you entered does not exist\n";**

**}**

**}**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**if (book3 == Cominbook\_lib[i].Comicbook\_name)**

**{**

**favorite\_books[2] = book3;**

**cout << "Book 03 added in Favbook list\n";**

**set3 = 'y';**

**}**

**else if (i == num\_of\_comin\_books)**

**{**

**cout << "The third book you entered does not exist\n";**

**set3 = 'n';**

**}**

**}**

**}**

**//This function displays the info about a reader**

**void Display\_info\_about\_reader()**

**{**

**cout << "The name of the reader is " << reader\_name << ".\n";**

**cout << "The reader type is " << reader\_type << ".\n";**

**cout << "The annaul fee the reader pays is " << annual\_fee << ".\n"**

**<< endl;**

**Display\_Fav\_Books();**

**}**

**//This function displays the Favorite books of the reader**

**void Display\_Fav\_Books()**

**{**

**cout << "The list of Favorite books of " << reader\_name << " is:\n";**

**if (set1 == 'y')**

**cout << "Book: " << favorite\_books[0] << ".\n";**

**if (set2 == 'y')**

**cout << "Book: " << favorite\_books[1] << ".\n";**

**if (set3 == 'y')**

**cout << "Book: " << favorite\_books[2] << ".\n";**

**}**

**//This function allows the user to select a book for reading**

**void selectbooks(string book1)**

**{**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**if (book1 == Cominbook\_lib[i].Comicbook\_name)**

**{**

**cout << "Book selected\n";**

**}**

**else**

**cout << "No such book exists try again!\n";**

**}**

**}**

**//This function serves as the Comicfactor and determines whether the user will be awarded or not.**

**void Comicfactor\_val(float val)**

**{**

**if (val > 8 && val <= 10)**

**{**

**cout << "Your Comic factor value is greater than 8 you'll get 10% discount.\n";**

**}**

**else**

**cout << "Sorry no discount available for your current rating\n.";**

**}**

**};**

**class Studygeek : virtual public Reader**

**{**

**public:**

**char set1, set2, set3;**

**int num\_of\_course\_books;**

**float annual\_fee;**

**struct Coursebook**

**{**

**string Coursebook\_name;**

**string Coursebook\_author;**

**string learning\_value;**

**} \* Coursebook\_lib;**

**Studygeek(string reader\_name, float annual\_fee) : Reader(reader\_name, "Studygeek")**

**{**

**this->annual\_fee = annual\_fee;**

**cout << "How many Course books are available in the store?\n";**

**fflush(stdin);**

**cin >> num\_of\_course\_books;**

**//Form here on I would take the input of books form the user which will be available in the Store's library, the user can select these books.**

**//I know this isn't an ideal solution since an ideal solution would've been a database for which filing was required and since we haven't learnt filing so far hence I have to individually take the input**

**//of the books available from the user. The code from here to line number 67 will be used to take input of books from the user about the name of the book, its author as well as the rating of the book so that the reader can also rate it.**

**Coursebook \*Coursebook\_lib = new Coursebook[num\_of\_course\_books];**

**for (int i = 0; i < num\_of\_course\_books; i++)**

**{**

**cout << "Enter the name of book no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Coursebook\_lib[i].Coursebook\_name);**

**cout << "Enter the name of author of book no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Coursebook\_lib[i].Coursebook\_author);**

**cout << "Rate book no." << i + 1 << " on the basis of learing value.\n";**

**fflush(stdin);**

**getline(cin, Coursebook\_lib[i].learning\_value);**

**}**

**}**

**Studygeek(string reader\_name) : Reader(reader\_name, "Freader")**

**{**

**cout << "How many Course books are available in the store?\n";**

**fflush(stdin);**

**cin >> num\_of\_course\_books;**

**//Form here on I would take the input of books form the user which will be available in the Store's library, the user can select these books.**

**//I know this isn't an ideal solution since an ideal solution would've been a database for which filing was required and since we haven't learnt filing so far hence I have to individually take the input**

**//of the books available from the user. The code from here to line number 67 will be used to take input of books from the user about the name of the book, its author as well as the rating of the book so that the reader can also rate it.**

**Coursebook \*Coursebook\_lib = new Coursebook[num\_of\_course\_books];**

**for (int i = 0; i < num\_of\_course\_books; i++)**

**{**

**cout << "Enter the name of book no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Coursebook\_lib[i].Coursebook\_name);**

**cout << "Enter the name of author of book no." << i + 1 << ".\n";**

**fflush(stdin);**

**getline(cin, Coursebook\_lib[i].Coursebook\_author);**

**cout << "Rate book no." << i + 1 << " on the basis of learing value.\n";**

**fflush(stdin);**

**getline(cin, Coursebook\_lib[i].learning\_value);**

**}**

**}**

**//This function enables the user to set his favorite books, the array of these books is defined in the base class**

**void setFavbooks(string book1, string book2, string book3)**

**{**

**for (int i = 0; i < num\_of\_course\_books; i++)**

**{**

**if (book1 == Coursebook\_lib[i].Coursebook\_name)**

**{**

**favorite\_books[0] = book1;**

**cout << "Book 01 added in Favbook list\n";**

**set1 = 'y';**

**}**

**else if (i == num\_of\_course\_books)**

**{**

**cout << "The first book you entered does not exist\n";**

**set1 = 'n';**

**}**

**}**

**for (int i = 0; i < num\_of\_course\_books; i++)**

**{**

**if (book2 == Coursebook\_lib[i].Coursebook\_name)**

**{**

**favorite\_books[1] = book2;**

**cout << "Book 02 added in Favbook list\n";**

**set2 = 'y';**

**}**

**else if (i == num\_of\_course\_books)**

**{**

**set2 = 'n';**

**cout << "The second book you entered does not exist\n";**

**}**

**}**

**for (int i = 0; i < num\_of\_course\_books; i++)**

**{**

**if (book3 == Coursebook\_lib[i].Coursebook\_name)**

**{**

**favorite\_books[2] = book3;**

**cout << "Book 03 added in Favbook list\n";**

**set3 = 'y';**

**}**

**else if (i == num\_of\_course\_books)**

**{**

**cout << "The third book you entered does not exist\n";**

**set3 = 'n';**

**}**

**}**

**}**

**//This function displays the info about a reader**

**void Display\_info\_about\_reader()**

**{**

**cout << "The name of the reader is " << reader\_name << ".\n";**

**cout << "The reader type is " << reader\_type << ".\n";**

**cout << "The annaul fee the reader pays is " << annual\_fee << ".\n"**

**<< endl;**

**Display\_Fav\_Books();**

**}**

**//This function displays the Favorite books of the reader**

**void Display\_Fav\_Books()**

**{**

**cout << "The list of Favorite books of " << reader\_name << " is:\n";**

**if (set1 == 'y')**

**cout << "Book: " << favorite\_books[0] << ".\n";**

**if (set2 == 'y')**

**cout << "Book: " << favorite\_books[1] << ".\n";**

**if (set3 == 'y')**

**cout << "Book: " << favorite\_books[2] << ".\n";**

**}**

**//This function allows the user to select a book for reading**

**void selectbooks(string book1)**

**{**

**for (int i = 0; i < num\_of\_course\_books; i++)**

**{**

**if (book1 == Coursebook\_lib[i].Coursebook\_name)**

**{**

**cout << "Book selected\n";**

**}**

**else**

**cout << "No such book exists try again!\n";**

**}**

**}**

**//This function serves as the StudyScale and determines whether the user will be awarded or not.**

**void StudyScale\_val(float val)**

**{**

**if (val > 0.6 && val <= 1)**

**{**

**cout << "Your StudyScale value is greater than 0.6 you'll get 10% discount.\n";**

**}**

**else**

**cout << "Sorry no discount available for your current rating\n.";**

**}**

**};**

**class Freader : public Mangaworm, public Comicnerd, public Studygeek**

**{**

**public:**

**float monthly\_fee;**

**static int number\_of\_books;**

**char setManga, setComic, setStudy;**

**char set1, set2, set3;**

**Freader(string reader\_name, float monthly\_fee) : Reader(reader\_name, "Freader"), Mangaworm(reader\_name), Comicnerd(reader\_name), Studygeek(reader\_name)**

**{**

**this->monthly\_fee = monthly\_fee;**

**}**

**//This function enables the user to set his favorite books, the array of these books is defined in the base class**

**void setFavbooks(string book1, string book2, string book3)**

**{**

**//For book 01**

**{**

**for (int i = 0; i < num\_of\_manga\_books; i++)**

**{**

**if (book1 == Mangabook\_lib[i].Mangabook\_name)**

**{**

**favorite\_books[0] = book1;**

**cout << "Book 01 added in Favbook list\n";**

**setManga = 'y';**

**set1 = 'y';**

**}**

**else**

**{**

**// cout << "The first book you entered does not exist\n";**

**setManga = 'n';**

**}**

**}**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**if (book1 == Cominbook\_lib[i].Comicbook\_name)**

**{**

**favorite\_books[0] = book1;**

**cout << "Book 01 added in Favbook list\n";**

**setComic = 'y';**

**set1 == 'y';**

**}**

**else if (i == num\_of\_comin\_books)**

**{**

**// cout << "The first book you entered does not exist\n";**

**setComic = 'n';**

**}**

**}**

**for (int i = 0; i < num\_of\_course\_books; i++)**

**{**

**if (book1 == Coursebook\_lib[i].Coursebook\_name)**

**{**

**favorite\_books[0] = book1;**

**cout << "Book 01 added in Favbook list\n";**

**setStudy = 'y';**

**set1 == 'y';**

**}**

**else if (i == num\_of\_course\_books)**

**{**

**// cout << "The first book you entered does not exist\n";**

**setStudy = 'n';**

**set1 == 'y';**

**}**

**}**

**if (setManga == 'n' && setStudy == 'n' && setComic == 'n')**

**{**

**cout << "Book 1 not found.\n";**

**set1 = 'n';**

**}**

**}**

**//For book 2**

**{**

**for (int i = 0; i < num\_of\_manga\_books; i++)**

**{**

**if (book2 == Mangabook\_lib[i].Mangabook\_name)**

**{**

**favorite\_books[1] = book2;**

**cout << "Book 02 added in Favbook list\n";**

**setManga = 'y';**

**set2 == 'y';**

**}**

**else if (i == num\_of\_manga\_books)**

**{**

**setManga = 'n';**

**// cout << "The second book you entered does not exist\n";**

**}**

**}**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**if (book2 == Cominbook\_lib[i].Comicbook\_name)**

**{**

**favorite\_books[1] = book2;**

**cout << "Book 02 added in Favbook list\n";**

**setComic = 'y';**

**set2 == 'y';**

**}**

**else if (i == num\_of\_comin\_books)**

**{**

**setComic = 'n';**

**// cout << "The second book you entered does not exist\n";**

**}**

**}**

**for (int i = 0; i < num\_of\_course\_books; i++)**

**{**

**if (book2 == Coursebook\_lib[i].Coursebook\_name)**

**{**

**favorite\_books[1] = book2;**

**cout << "Book 02 added in Favbook list\n";**

**setStudy = 'y';**

**set2 == 'y';**

**}**

**else if (i == num\_of\_course\_books)**

**{**

**setStudy = 'n';**

**// cout << "The second book you entered does not exist\n";**

**}**

**}**

**if (setManga == 'n' && setStudy == 'n' && setComic == 'n')**

**{**

**cout << "Book 2 not found.\n";**

**set2 = 'n';**

**}**

**}**

**//For book 3**

**{**

**for (int i = 0; i < num\_of\_manga\_books; i++)**

**{**

**if (book3 == Mangabook\_lib[i].Mangabook\_name)**

**{**

**favorite\_books[2] = book3;**

**cout << "Book 03 added in Favbook list\n";**

**setManga = 'y';**

**set3 = 'y';**

**}**

**else if (i == num\_of\_manga\_books)**

**{**

**// cout << "The third book you entered does not exist\n";**

**setManga = 'n';**

**}**

**}**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**if (book3 == Cominbook\_lib[i].Comicbook\_name)**

**{**

**favorite\_books[2] = book3;**

**cout << "Book 03 added in Favbook list\n";**

**setComic = 'y';**

**set3 = 'y';**

**}**

**else if (i == num\_of\_comin\_books)**

**{**

**cout << "The third book you entered does not exist\n";**

**setComic = 'n';**

**}**

**}**

**for (int i = 0; i < num\_of\_course\_books; i++)**

**{**

**if (book3 == Coursebook\_lib[i].Coursebook\_name)**

**{**

**favorite\_books[2] = book3;**

**cout << "Book 03 added in Favbook list\n";**

**setStudy = 'y';**

**set3 = 'y';**

**}**

**else if (i == num\_of\_course\_books)**

**{**

**cout << "The third book you entered does not exist\n";**

**setStudy = 'n';**

**}**

**}**

**if (setManga == 'n' && setStudy == 'n' && setComic == 'n')**

**{**

**cout << "Book 3 not found.\n";**

**set3 = 'n';**

**}**

**}**

**}**

**//This function displays the info about a reader**

**void Display\_info\_about\_reader()**

**{**

**cout << "The name of the reader is " << reader\_name << ".\n";**

**cout << "The reader type is " << reader\_type << ".\n";**

**cout << "The annaul fee the reader pays is " << monthly\_fee << ".\n"**

**<< endl;**

**Display\_Fav\_Books();**

**}**

**//This function displays the Favorite books of the reader**

**void Display\_Fav\_Books()**

**{**

**cout << "The list of Favorite books of " << reader\_name << " is:\n";**

**if (set1 == 'y')**

**cout << "Book: " << favorite\_books[0] << ".\n";**

**if (set2 == 'y')**

**cout << "Book: " << favorite\_books[1] << ".\n";**

**if (set3 == 'y')**

**cout << "Book: " << favorite\_books[2] << ".\n";**

**}**

**//This function allows the user to select a book for reading**

**void selectbooks(string book1)**

**{**

**if (number\_of\_books == 15)**

**{**

**cout << "Maximum number of books reached now you'll have to pay a fee to access further books.\n";**

**cout << "Do you want to pay a fee? (Y/N)\n";**

**char choice;**

**fflush(stdin);**

**cin >> choice;**

**if (choice == 'Y' || choice == 'y')**

**{**

**payfee();**

**}**

**else**

**{**

**cout << "Thanks for choosing our store\n";**

**exit(0);**

**}**

**}**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**if (book1 == Cominbook\_lib[i].Comicbook\_name)**

**{**

**cout << "Book selected\n";**

**number\_of\_books++;**

**}**

**else**

**{**

**setManga = 'n';**

**// cout << "No such book exists try again!\n";**

**}**

**}**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**if (book1 == Cominbook\_lib[i].Comicbook\_name)**

**{**

**cout << "Book selected\n";**

**number\_of\_books++;**

**}**

**else**

**{**

**setComic = 'n';**

**// cout << "No such book exists try again!\n";**

**}**

**}**

**for (int i = 0; i < num\_of\_course\_books; i++)**

**{**

**if (book1 == Coursebook\_lib[i].Coursebook\_name)**

**{**

**cout << "Book selected\n";**

**number\_of\_books++;**

**}**

**else**

**{**

**setStudy = 'n';**

**// cout << "No such book exists try again!\n";**

**}**

**}**

**if (setManga == 'n' && setStudy == 'n' && setComic == 'n')**

**cout << "No such book exists.\n";**

**}**

**//This function will ask the Freader to pay a $15 fee when he reaches the limit of 15 books**

**void payfee()**

**{**

**cout << "Thank you for upgrading your package! Enter Y to pay $15 to keep reading\n";**

**char choice;**

**fflush(stdin);**

**cin >> choice;**

**if (choice == 'Y' || choice == 'y')**

**{**

**cout << "Enjoy your reading!\n";**

**}**

**else**

**{**

**cout << "Thanks for using our service!\n";**

**exit(0);**

**}**

**}**

**//This function serves as the decider and determines whether the user will be awarded or not.**

**void Freader\_reward(float Mangameter\_val, float Comicfactor\_Val, float StudyScale\_val)**

**{**

**if ((Mangameter\_val > 50 && Mangameter\_val <= 100) && (Comicfactor\_Val > 8 && Comicfactor\_Val <= 10) && (StudyScale\_val > 0.6 && StudyScale\_val <= 1))**

**{**

**cout << "Your Mangameter Val is greater than 50, Comicfactor val is greater than 8 and StudyScale Val is greater than 0.6.\nYou will get a 10% discount on the next purchase you make.\n";**

**}**

**else**

**cout << "You are not eligible to avial disocunt.\n";**

**}**

**//copy constructor of freader**

**Freader(Freader &ob) : Reader(ob.reader\_name, "Freader"), Mangaworm(ob.reader\_name), Comicnerd(ob.reader\_name), Studygeek(ob.reader\_name)**

**{**

**reader\_name = ob.reader\_name;**

**reader\_type = ob.reader\_type;**

**num\_of\_manga\_books = ob.num\_of\_manga\_books;**

**num\_of\_comin\_books = ob.num\_of\_comin\_books;**

**num\_of\_course\_books = ob.num\_of\_course\_books;**

**monthly\_fee = ob.monthly\_fee;**

**setManga = ob.setManga;**

**setComic = ob.setComic;**

**setStudy = ob.setStudy;**

**set1 = ob.set1;**

**set2 = ob.set2;**

**set3 = ob.set3;**

**num\_of\_freaders = ob.num\_of\_freaders;**

**number\_of\_books = ob.number\_of\_books;**

**for (int i = 0; i < ob.num\_of\_manga\_books; i++)**

**{**

**Mangabook\_lib[i].Mangabook\_name = ob.Mangabook\_lib[i].Mangabook\_name;**

**Mangabook\_lib[i].Mangabook\_author = ob.Mangabook\_lib[i].Mangabook\_author;**

**Mangabook\_lib[i].artsyle = ob.Mangabook\_lib[i].artsyle;**

**}**

**for (int i = 0; i < num\_of\_comin\_books; i++)**

**{**

**Cominbook\_lib[i].Comicbook\_name = ob.Cominbook\_lib[i].Comicbook\_name;**

**Cominbook\_lib[i].Comicbook\_author = ob.Cominbook\_lib[i].Comicbook\_author;**

**Cominbook\_lib[i].panelsize = ob.Cominbook\_lib[i].panelsize;**

**}**

**for (int i = 0; i < num\_of\_course\_books; i++)**

**{**

**Coursebook\_lib[i].Coursebook\_author = ob.Coursebook\_lib[i].Coursebook\_author;**

**Coursebook\_lib[i].Coursebook\_name = ob.Coursebook\_lib[i].Coursebook\_name;**

**Coursebook\_lib[i].learning\_value = ob.Coursebook\_lib[i].learning\_value;**

**}**

**for (int i = 0; i < 3; i++)**

**{**

**favorite\_books[i] = ob.favorite\_books[i];**

**}**

**}**

**};**

**int Freader::number\_of\_books = 0;**

**int main()**

**{**

**}**

**Task 03)**

Yes, there is are 4 functions overridden in all classes whose names are

1. setFavbooks (Because other classes could only access only type of books and for freader I needed access to all types of books)
2. Display\_info\_about\_reader (Because information about each type of reader has to be displayed in a different format)
3. Display\_Fav\_Books (Because other classes could only access only type of books and for freader I needed access to all types of books)
4. Selectbooks (Because other classes could only access only type of books and for freader I needed access to all types of books)

Because each class has different kinds of books hence we will need different function for all those classes.

**Task 04)**

No there aren’t any overloaded functions in my program

**Task 05)**

//copy constructor of freader

    Freader(Freader &ob) : Reader(ob.reader\_name, "Freader"), Mangaworm(ob.reader\_name), Comicnerd(ob.reader\_name), Studygeek(ob.reader\_name)

    {

        reader\_name = ob.reader\_name;

        reader\_type = ob.reader\_type;

        num\_of\_manga\_books = ob.num\_of\_manga\_books;

        num\_of\_comin\_books = ob.num\_of\_comin\_books;

        num\_of\_course\_books = ob.num\_of\_course\_books;

        monthly\_fee = ob.monthly\_fee;

        setManga = ob.setManga;

        setComic = ob.setComic;

        setStudy = ob.setStudy;

        set1 = ob.set1;

        set2 = ob.set2;

        set3 = ob.set3;

        num\_of\_freaders = ob.num\_of\_freaders;

        number\_of\_books = ob.number\_of\_books;

        for (int i = 0; i < ob.num\_of\_manga\_books; i++)

        {

            Mangabook\_lib[i].Mangabook\_name = ob.Mangabook\_lib[i].Mangabook\_name;

            Mangabook\_lib[i].Mangabook\_author = ob.Mangabook\_lib[i].Mangabook\_author;

            Mangabook\_lib[i].artsyle = ob.Mangabook\_lib[i].artsyle;

        }

        for (int i = 0; i < num\_of\_comin\_books; i++)

        {

            Cominbook\_lib[i].Comicbook\_name = ob.Cominbook\_lib[i].Comicbook\_name;

            Cominbook\_lib[i].Comicbook\_author = ob.Cominbook\_lib[i].Comicbook\_author;

            Cominbook\_lib[i].panelsize = ob.Cominbook\_lib[i].panelsize;

        }

        for (int i = 0; i < num\_of\_course\_books; i++)

        {

            Coursebook\_lib[i].Coursebook\_author = ob.Coursebook\_lib[i].Coursebook\_author;

            Coursebook\_lib[i].Coursebook\_name = ob.Coursebook\_lib[i].Coursebook\_name;

            Coursebook\_lib[i].learning\_value = ob.Coursebook\_lib[i].learning\_value;

        }

        for (int i = 0; i < 3; i++)

        {

            favorite\_books[i] = ob.favorite\_books[i];

        }

    }