**Cinema**

**Avaliable from**: Sunday, 12 July 2020, 10:00  
**Due date**: Sunday, 12 July 2020, 16:00  
**Requested files**: Program.cs, Movie.cs, Cinema.cs ([Download](https://it-kariera.mon.bg/e-learning/mod/vpl/views/downloadrequiredfiles.php?id=4884))  
**Type of work**: Individual work  
**Настройки на оценките**: Максимална оценка: 100  
**Run**: Не. **Evaluate**: Да. **Evaluate just on submission**: Да  
**Automatic grade**: Да.

**Кино**

**Общ преглед**

Във вашата фирма постъпва проект за създаване на приложение, обслужващо кино.

Вашият софтуер трябва да описва **кино** **(Cinema)** и **филм (Movie).**

Tрябва да реализирате функционалност, която да позволява някои основни команди с филмите в киното. Поредицата от команди приключва с „**END**”. За ваше удобство ще получите готов **Program.cs** файл, и ще трябва да реализирате само необходимите класове **Cinema.cs** и **Movie.cs**

**Подзадача 1: 30 точки**

**Movie**

Всички филми имат заглавие и списък с рейтинг:

title – текст

rating – рейтинг (дробно число)

|  |
| --- |
| Movie.cs |
| private string title;  private double rating;    public Movie(string title, double rating)  {    //TODO: Добавете вашия код тук …  }    public string Title  {    //TODO: Добавете вашия код тук …  }    public double Rating  {    //TODO: Добавете вашия код тук …  }    public override string ToString()  {    //TODO: Добавете вашия код тук …  } |

**Cinema**

Всяко кино има име и списък с филми:

name – текст

movies – списък от филми

|  |
| --- |
| Cinema.cs |
| private string name;  private List<Movie> movies;    public Cinema (string name)  {    //TODO: Добавете вашия код тук …  }    public string Name  {    //TODO: Добавете вашия код тук …  }    public List<Movie> Movies  {    //TODO: Добавете вашия код тук …  }    public void AddMovie(string title, double rating)  {    //TODO: Добавете вашия код тук …  }    public double AverageRating()  {    //TODO: Добавете вашия код тук …  }    public List<string> RemoveMoviesByRating(double rating)  {    //TODO: Добавете вашия код тук …  }    public List<Movie> SortByTitle()  {    //TODO: Добавете вашия код тук …  }    public List<Movie> SortByRating()  {    //TODO: Добавете вашия код тук …  }    public string[] ProvideInformationAboutAllMovies()  {    //TODO: Добавете вашия код тук …  }    public bool CheckMovieIsInCinema(string title)  {    //TODO: Добавете вашия код тук …  } |

**Командa за добавяне на филм**

Вашето приложение трябва да обслужва следната команда за добавяне на филм:

* **AddMovie** <**заглавие рейтинг**> - тази команда има за цел да добави филм с неговото заглавие и рейтинг.

**Команда за извеждане на информация**

Вашето приложение във всеки един момент може да получи заявка да отпечата информация за всички филми. Командата за това е следната:

* **PrintCinemaInfo** - отпечатва информация за всички филми в структурата във формат:  
  **Movie {title} is with {rating} rating.**
* За успешна реализация трябва да реализирате ваша версия на **ToString()** метода за класа **Movie.**
* **Рейтингът трябва да бъде форматирана до първия знак след десетичната запетая.**
* **SortByTitle** - Трябва да сортира филмите от списъка по име във възходящ (нарастващ) ред. След което трябва да бъде върнат сортираният списък.
* **SortByRating** - Трябва да сортира филмите в списъка по рейтинг в низходящ (намаляващ) ред.  След което трябва да бъде върнат сортираният списък.
* **CheckMovie<title**> - Трябва да бъде намерен филм, на който заглавието да съвпада с подаденото. При успешно намиране трябва да върнете булева стойност **true,** а в обратен случай **false.**

**Подзадача 2: 30 точки**

**Подзадача 3: 20 точки**

* **GetBestMoviesByRating <рейтинг**> - Трябва да бъдат намерени всички филми от списъка, на които рейтингът им е по-висок от дадения в командата. Да се върне списък със загалвията на намерените филми.
* **AverageRating** - Трябва да бъде намерен средноаритметичният рейтинг на филмите в списъка.
* Програмата ще получава множество редове с информация. Всеки ред представлява команда. Самият вход се обработва изцяло от примерния Program.cs.
* Всички команди приключват с въвеждането на END

**Подзадача 4: 20 точки**

**Вход**

**Изход**

За някои от командите не е нужно да извеждате нищо. За други е необходимо форматиране на изход – напр. Movie.ToString(), Movie.Title()

**Ограничения**

* Всички реални числа ще бъдат в диапазона **–10000.** до **+10000.**
* Имената няма да съдържат интервал

**Примери**

|  |  |
| --- | --- |
| **Вход** | **Изход** |
| AddMovie, The Matrix, 8.6  AddMovie, Parasite, 8.5  AddMovie, Green Book, 8.2  PrintCinemaInfo  END | Added movie: The Matrix -> 8.6.  Added movie: Parasite -> 8.5.  Added movie: Green Book -> 8.2.  Movie The Matrix is with 8.6 rating.  Movie Parasite is with 8.5 rating.  Movie Green Book is with 8.2 rating. |
| AddMovie, Passengers, 7.0  AddMovie, A star is born, 7.7  AddMovie, Troy, 7.2  PrintCinemaInfo  SortByTitle  PrintCinemaInfo  SortByRating  PrintCinemaInfo  CheckMovie, Troy  CheckMovie, IT  AverageRating  GetBestMoviesByRating, 7.1  END | Added movie: Passengers -> 7.  Added movie: A star is born -> 7.7.  Added movie: Troy -> 7.2.  Movie Passengers is with 7.0 rating.  Movie A star is born is with 7.7 rating.  Movie Troy is with 7.2 rating.  First movie is: A star is born  Movie A star is born is with 7.7 rating.  Movie Passengers is with 7.0 rating.  Movie Troy is with 7.2 rating.  The worst movie is with rating: 7  Movie A star is born is with 7.7 rating.  Movie Troy is with 7.2 rating.  Movie Passengers is with 7.0 rating.  Movie Troy is available.  Movie IT is not available.  Average rating of movies: 7.3  Most rated movies are: A star is born, Troy |

**Точки**

Разбивката по подзадачи е следната:

1. **30** точки
2. **30** точки
3. **20** точки
4. **20** точки

Общ брой точки: **100**

**Requested files**

**Program.cs**

using System;

using System.Collections.Generic;

namespace Exam2\_Retake

{

class Program

{

static Cinema cinema = new Cinema("CineGrand");

static void Main(string[] args)

{

string line;

while ("END" != (line = Console.ReadLine()))

{

string[] cmdArgs = line.Split(", ");

switch (cmdArgs[0])

{

case "AddMovie":

AddMovie(cmdArgs[1], double.Parse(cmdArgs[2]));

break;

case "AverageRating":

AverageRating();

break;

case "GetBestMoviesByRating":

GetMoviesByRating(double.Parse(cmdArgs[1]));

break;

case "SortByTitle":

SortByTitle();

break;

case "SortByRating":

SortByRating();

break;

case "CheckMovie":

CheckMovieIsInCinema(cmdArgs[1]);

break;

case "PrintCinemaInfo":

ProvideInformationAboutAllMovies();

break;

}

}

}

private static void ProvideInformationAboutAllMovies()

{

string[] info = cinema.ProvideInformationAboutAllMovies();

foreach (string item in info)

{

Console.WriteLine(item);

}

}

private static void CheckMovieIsInCinema(string title)

{

if (cinema.CheckMovieIsInCinema(title))

{

Console.WriteLine($"Movie {title} is available.");

}

else

{

Console.WriteLine($"Movie {title} is not available.");

}

}

private static void SortByRating()

{

cinema.SortByRating();

Console.WriteLine("The worst movie is with rating: " + cinema.Movies[cinema.Movies.Count - 1].Rating);

}

private static void SortByTitle()

{

cinema.SortByTitle();

Console.WriteLine("First movie is: " + cinema.Movies[0].Title);

}

private static void GetMoviesByRating(double rating)

{

List<string> bestMovies = cinema.GetMoviesByRating(rating);

Console.WriteLine("Most rated movies are: " + string.Join(", ", bestMovies));

}

private static void AverageRating()

{

double averageRating = cinema.AverageRating();

Console.WriteLine($"Average rating of movies: {averageRating:f1}");

}

private static void AddMovie(string title, double rating)

{

cinema.AddMovie(title, rating);

Console.WriteLine($"Added movie: {title} -> {rating}.");

}

}

}

#### Movie.cs

#### Cinema.cs

## Execution files

#### vpl\_evaluate.cases

Case=Case000-001

input=AddMovie, The Matrix, 8.6

AddMovie, Parasite, 8.5

AddMovie, Green Book, 8.2

PrintCinemaInfo

END

output=Added movie: The Matrix -> 8.6.

Added movie: Parasite -> 8.5.

Added movie: Green Book -> 8.2.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Movie Green Book is with 8.2 rating.

Case=Case000-002

input=AddMovie, Passengers, 7.0

AddMovie, A star is born, 7.7

AddMovie, Troy, 7.2

PrintCinemaInfo

SortByTitle

PrintCinemaInfo

SortByRating

PrintCinemaInfo

CheckMovie, Troy

CheckMovie, IT

AverageRating

GetBestMoviesByRating, 7.1

END

output=Added movie: Passengers -> 7.

Added movie: A star is born -> 7.7.

Added movie: Troy -> 7.2.

Movie Passengers is with 7.0 rating.

Movie A star is born is with 7.7 rating.

Movie Troy is with 7.2 rating.

First movie is: A star is born

Movie A star is born is with 7.7 rating.

Movie Passengers is with 7.0 rating.

Movie Troy is with 7.2 rating.

The worst movie is with rating: 7

Movie A star is born is with 7.7 rating.

Movie Troy is with 7.2 rating.

Movie Passengers is with 7.0 rating.

Movie Troy is available.

Movie IT is not available.

Average rating of movies: 7.3

Most rated movies are: A star is born, Troy

Case=Case001

Fail message= Case1\_fail

grade reduction=10

input=AddMovie, The Matrix, 8.6

AddMovie, Parasite, 8.5

AddMovie, Green Book, 8.2

AddMovie, Die Hard, 8.2

AddMovie, Harry Potter, 8.9

PrintCinemaInfo

END

output=Added movie: The Matrix -> 8.6.

Added movie: Parasite -> 8.5.

Added movie: Green Book -> 8.2.

Added movie: Die Hard -> 8.2.

Added movie: Harry Potter -> 8.9.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Movie Green Book is with 8.2 rating.

Movie Die Hard is with 8.2 rating.

Movie Harry Potter is with 8.9 rating.

Case=Case002

Fail message= Case2\_fail

grade reduction=10

input=AddMovie, The Matrix, 8.6

AddMovie, Parasite, 8.5

PrintCinemaInfo

AddMovie, Green Book, 8.2

AddMovie, Die Hard, 8.2

PrintCinemaInfo

AddMovie, Harry Potter, 8.9

PrintCinemaInfo

END

output=Added movie: The Matrix -> 8.6.

Added movie: Parasite -> 8.5.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Added movie: Green Book -> 8.2.

Added movie: Die Hard -> 8.2.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Movie Green Book is with 8.2 rating.

Movie Die Hard is with 8.2 rating.

Added movie: Harry Potter -> 8.9.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Movie Green Book is with 8.2 rating.

Movie Die Hard is with 8.2 rating.

Movie Harry Potter is with 8.9 rating.

Case=Case003

Fail message= Case3\_fail

grade reduction=10

input=AddMovie, The Matrix, 8.6

PrintCinemaInfo

AddMovie, Parasite, 8.5

PrintCinemaInfo

AddMovie, Green Book, 8.2

PrintCinemaInfo

AddMovie, Die Hard, 8.2

PrintCinemaInfo

AddMovie, Harry Potter, 8.9

PrintCinemaInfo

END

output=Added movie: The Matrix -> 8.6.

Movie The Matrix is with 8.6 rating.

Added movie: Parasite -> 8.5.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Added movie: Green Book -> 8.2.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Movie Green Book is with 8.2 rating.

Added movie: Die Hard -> 8.2.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Movie Green Book is with 8.2 rating.

Movie Die Hard is with 8.2 rating.

Added movie: Harry Potter -> 8.9.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Movie Green Book is with 8.2 rating.

Movie Die Hard is with 8.2 rating.

Movie Harry Potter is with 8.9 rating.

Case=Case004

Fail message= Case4\_fail

grade reduction=10

input=AddMovie, The Matrix, 8.6

AddMovie, Parasite, 8.5

AddMovie, Green Book, 8.2

AddMovie, Die Hard, 8.2

AddMovie, Harry Potter, 8.9

PrintCinemaInfo

SortByTitle

END

output=Added movie: The Matrix -> 8.6.

Added movie: Parasite -> 8.5.

Added movie: Green Book -> 8.2.

Added movie: Die Hard -> 8.2.

Added movie: Harry Potter -> 8.9.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Movie Green Book is with 8.2 rating.

Movie Die Hard is with 8.2 rating.

Movie Harry Potter is with 8.9 rating.

First movie is: Die Hard

Case=Case005

Fail message= Case5\_fail

grade reduction=10

input=AddMovie, The Matrix, 8.6

AddMovie, Parasite, 8.5

AddMovie, Green Book, 8.2

AddMovie, Die Hard, 8.2

AddMovie, Harry Potter, 8.9

PrintCinemaInfo

SortByRating

END

output=Added movie: The Matrix -> 8.6.

Added movie: Parasite -> 8.5.

Added movie: Green Book -> 8.2.

Added movie: Die Hard -> 8.2.

Added movie: Harry Potter -> 8.9.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Movie Green Book is with 8.2 rating.

Movie Die Hard is with 8.2 rating.

Movie Harry Potter is with 8.9 rating.

The worst movie is with rating: 8.2

Case=Case006

Fail message= Case6\_fail

grade reduction=10

input=AddMovie, The Matrix, 8.6

AddMovie, Parasite, 8.5

AddMovie, Green Book, 8.2

CheckMovie, Parasite

AddMovie, Die Hard, 8.2

AddMovie, Harry Potter, 8.9

CheckMovie, The Matrix

CheckMovie, The Lord of the rings

END

output=Added movie: The Matrix -> 8.6.

Added movie: Parasite -> 8.5.

Added movie: Green Book -> 8.2.

Movie Parasite is available.

Added movie: Die Hard -> 8.2.

Added movie: Harry Potter -> 8.9.

Movie The Matrix is available.

Movie The Lord of the rings is not available.

Case=Case007

Fail message= Case7\_fail

grade reduction=10

input=AddMovie, The Matrix, 8.6

AddMovie, Parasite, 8.5

AddMovie, Green Book, 8.2

AddMovie, Die Hard, 8.2

AddMovie, Harry Potter, 8.9

PrintCinemaInfo

GetBestMoviesByRating, 8.4

END

output=Added movie: The Matrix -> 8.6.

Added movie: Parasite -> 8.5.

Added movie: Green Book -> 8.2.

Added movie: Die Hard -> 8.2.

Added movie: Harry Potter -> 8.9.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.5 rating.

Movie Green Book is with 8.2 rating.

Movie Die Hard is with 8.2 rating.

Movie Harry Potter is with 8.9 rating.

Most rated movies are: The Matrix, Parasite, Harry Potter

Case=Case008

Fail message= Case8\_fail

grade reduction=10

input=AddMovie, The Matrix, 8.6

AddMovie, Parasite, 8.2

AddMovie, Green Book, 8.2

AddMovie, Die Hard, 8.2

AddMovie, Harry Potter, 8.9

PrintCinemaInfo

GetBestMoviesByRating, 8.2

END

output=Added movie: The Matrix -> 8.6.

Added movie: Parasite -> 8.2.

Added movie: Green Book -> 8.2.

Added movie: Die Hard -> 8.2.

Added movie: Harry Potter -> 8.9.

Movie The Matrix is with 8.6 rating.

Movie Parasite is with 8.2 rating.

Movie Green Book is with 8.2 rating.

Movie Die Hard is with 8.2 rating.

Movie Harry Potter is with 8.9 rating.

Most rated movies are: The Matrix, Harry Potter

Case=Case009

Fail message= Case9\_fail

grade reduction=10

input=AddMovie, The Matrix, 8.6

AddMovie, Parasite, 8.5

AddMovie, Green Book, 8.2

AddMovie, Die Hard, 8.2

AddMovie, Harry Potter, 8.9

AverageRating

END

output=Added movie: The Matrix -> 8.6.

Added movie: Parasite -> 8.5.

Added movie: Green Book -> 8.2.

Added movie: Die Hard -> 8.2.

Added movie: Harry Potter -> 8.9.

Average rating of movies: 8.5

Case=Case010

Fail message= Case10\_fail

grade reduction=10

input=AddMovie, The Matrix, 7.6

AddMovie, Parasite, 8.1

AddMovie, Green Book, 4.2

AddMovie, Die Hard, 6.5

AddMovie, Harry Potter, 8.0

AverageRating

END

output=Added movie: The Matrix -> 7.6.

Added movie: Parasite -> 8.1.

Added movie: Green Book -> 4.2.

Added movie: Die Hard -> 6.5.

Added movie: Harry Potter -> 8.

Average rating of movies: 6.9