

Kauno technologijos universitetas

Informatikos fakultetas

Objektinis programavimas I (P175B118)

Laboratorinių darbų ataskaita

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# Duomenų klasė

## Darbo užduotis

U1-9. IMDB.

Turite iš IMDB „ištrauktą“ filmų sąrašą. Duomenų faile pateikta informacija apie filmus: filmo pavadinimas, leidimo metai, žanras, kino studija, režisierius, 2 aktoriai, pajamos. • Raskite pelningiausią 2019 m. filmą, ekrane atspausdinkite šio filmo pavadinimą, režisierių, bei kiek filmas uždirbo. Jei yra keli, spausdinkite visus. • Raskite daugiausiai filmų pastačiusį režisierių, ekrane atspausdinkite jo pavardę. Jei yra keli, spausdinkite visus. • Sudarykite filmų, kuriuose vaidino N. Cage, sąrašą, į failą „Cage.csv“ įrašykite filmų pavadinimus, leidimo metus bei kino studijos pavadinimus.

## Programos tekstas

AllMovieInfo.cs:

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Lab01

{

/// <summary>

/// Saves Important Information For ALL IMDB Class Objects

/// </summary>

static class AllMovieInfo

{

private static Dictionary<string, int> DirectorPopularity = new Dictionary<string, int>();

/// <summary>

/// Finds Directors With The Most Movies Directed. Returns List String Object.

/// </summary>

/// <returns></returns>

public static List<string> FindBestDirectors()

{

List<string> directors = new List<string>();

int filmsDirected = 0;

foreach (string key in DirectorPopularity.Keys)

{

if (filmsDirected < DirectorPopularity[key])

{

filmsDirected = DirectorPopularity[key];

directors.Clear();

directors.Add(key);

}

else if (filmsDirected == DirectorPopularity[key])

{

directors.Add(key);

}

}

return directors;

}

/// <summary>

/// Adds a Movie Tally To The Director

/// </summary>

/// <param name="director"></param>

public static void AddDirector(string director)

{

/// <summary>

/// Records how many movies a director has directed.

/// </summary>

if (DirectorPopularity.ContainsKey(director) == false)

DirectorPopularity.Add(director, 0);

DirectorPopularity[director]++;

}

}

}

IMDB.cs:

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.IO;

namespace Lab01

{

/// <summary>

/// IMDB Movie Object

/// </summary>

class IMDB

{

public string Name { get; set; }

public int Date { get; set; }

public string Genre { get; set; }

public string Studio { get; set; }

public string Director { get; set; }

public List<string> Actors { get; set; }

public int Revenue { get; set; }

public IMDB(string name,

int date,

string genre,

string studio,

string director,

string actor1,

string actor2,

int revenue)

{

Name = name;

Date = date;

Genre = genre;

Director = director;

Revenue = revenue;

Studio = studio;

Actors = new List<string>();

Actors.Add(actor1);

Actors.Add(actor2);

AllMovieInfo.AddDirector(Director);

}

}

}

InOutHelpers.cs:

using System;

using System.Collections.Generic;

using System.IO;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Lab01

{

/// <summary>

/// File Input Output Helper

/// </summary>

static class InOutHelpers

{

// Text formatting const

private const int tSize = -20;

/// <summary>

/// REwrites Initial Data. Takes List<IMDB>, string outputPath. Returns void

/// </summary>

/// <param name="movies">List IMDB object</param>

/// <param name="outputPath"> output path to where to write the data</param>

public static void WriteInitialData(List<IMDB> movies, string outputPath)

{

using (StreamWriter sw = new StreamWriter(outputPath))

{

sw.WriteLine($"{"Name",tSize}|" +

$"{"Date",tSize}|" +

$"{"Genre",tSize}|" +

$"{"Studio",tSize}|" +

$"{"Director",tSize}|" +

$"{"Actors",(tSize \* 2) - 1}|" +

$"{"Revenue",-10}|");

foreach (IMDB movie in movies)

sw.WriteLine($"{movie.Name,tSize}|" +

$"{movie.Date,-tSize}|" +

$"{movie.Genre,tSize}|" +

$"{movie.Studio,tSize}|" +

$"{movie.Director,tSize}|" +

$"{movie.Actors[0],tSize}|" +

$"{movie.Actors[1],tSize}|" +

$"{movie.Revenue,10}|");

}

}

/// <summary>

/// Writes Data to Output File

/// </summary>

/// <param name="movies">List IMDB Object</param>

/// <param name="ouputPath">Output File Path</param>

public static void PrintMoviesToCSV(this List<IMDB> movies, string ouputPath)

{

using (StreamWriter sw = new StreamWriter(ouputPath))

{

sw.WriteLine($"{"Name",tSize};{"Date",tSize};{"Studio",tSize}");

foreach (IMDB movie in movies)

sw.WriteLine($"{movie.Name};{movie.Date};{movie.Studio}");

}

}

/// <summary>

/// Reads Data, returns List IMDB Object

/// </summary>

/// <param name="filePath">Input File Object</param>

/// <returns></returns>

public static List<IMDB> ReadData(string filePath)

{

List<IMDB> output = new List<IMDB>();

using (StreamReader sr = new StreamReader(filePath))

{

string line;

while ((line = sr.ReadLine()) != null)

{

string[] data = line.Split(';');

IMDB imdb = new IMDB(data[0],

int.Parse(data[1]),

data[2],

data[3],

data[4],

data[5],

data[6],

int.Parse(data[7]));

output.Add(imdb);

}

}

return output;

}

}

}

TaskUtils.cs:

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Lab01

{

/// <summary>

/// Task Utilities For Console And Extension Methods For Filtering

/// </summary>

static class TaskUtils

{

/// <summary>

/// Prints Most Profitable Movies

/// </summary>

/// <param name="movies">List IMDB Object</param>

public static void PrintMostProfitable(this List<IMDB> movies)

{

if (movies.Count == 0)

Console.WriteLine("No Movies Found");

else

{

Console.WriteLine($"{"Name",-20}|{"Director",-20}|{"Revenue",-20}");

foreach (IMDB movie in movies)

{

Console.WriteLine($"{movie.Name,-20}|{movie.Director,-20}|{movie.Revenue,6}");

}

}

}

/// <summary>

/// Prints Directors in "PrintBestDirectors" format

/// </summary>

/// <param name="directors">List IMDB Object</param>

public static void PrintBestDirectors(this List<string> directors)

{

Console.WriteLine("Best Directors: ");

if (directors.Count == 0)

Console.WriteLine("No Directors Found");

else

foreach (string director in directors)

Console.WriteLine(director);

}

/// <summary>

/// Finds Movies With Given Actor (string)

/// </summary>

/// <param name="movies">List IMDB object</param>

/// <param name="actor">Actor Name to Be Searched</param>

/// <returns></returns>

public static List<IMDB> FindMoviesWith(this List<IMDB> movies, string actor)

{

List<IMDB> output = new List<IMDB>();

foreach (IMDB movie in movies)

if (movie.Actors.Contains(actor))

output.Add(movie);

return output;

}

/// <summary>

/// Finds Most Profitable Movies in a given year (int)

/// </summary>

/// <param name="movies">List IMDB object</param>

/// <param name="year">int year when the movie was released</param>

/// <returns></returns>

public static List<IMDB> FindMostProfitable(this List<IMDB> movies, int year)

{

List<IMDB> output = new List<IMDB>();

int profitability = 0;

Console.WriteLine($"Most Profitable Movies in Year: {year}");

foreach (IMDB movie in movies)

{

if (movie.Date == year)

{

if (profitability < movie.Revenue)

{

profitability = movie.Revenue;

output.Clear();

output.Add(movie);

}

else if (profitability == movie.Revenue)

{

output.Add(movie);

}

}

}

return output;

}

}

}

Program.cs:

using System;

using System.Collections.Generic;

namespace Lab01

{

class Program

{

const string CDd = @"imdb2.txt";

const string CDinitial = @"imdbInitial.txt";

const string CDcsv = @"MoviesWith.csv";

static void Main(string[] args)

{

List<IMDB> imdb = InOutHelpers.ReadData(CDd);

InOutHelpers.WriteInitialData(imdb, CDinitial);

imdb.FindMostProfitable(2019).PrintMostProfitable();

Console.WriteLine(new string('-', 74));

AllMovieInfo.FindBestDirectors().PrintBestDirectors();

imdb.FindMoviesWith("N. Cage").PrintMoviesToCSV(CDcsv);

Console.ReadLine();

}

}

}

## Pradiniai duomenys ir rezultatai

Pirmas testinis variantas

Pradiniai duomenys:

imdb.txt

Hangover;2012;Comedy;Studio A;Director A;N. Cage;J. Sperrow;318

Hamilton;2020;History;Netflix;Lin-Manuel Miranda;Lin-Manuel Miranda;Leslie Odom Jr;212

Parasite;2019;Thriller;CJ Entertainment;Bong Joon Ho;Kang-ho Song;Sun-kyun Lee;212

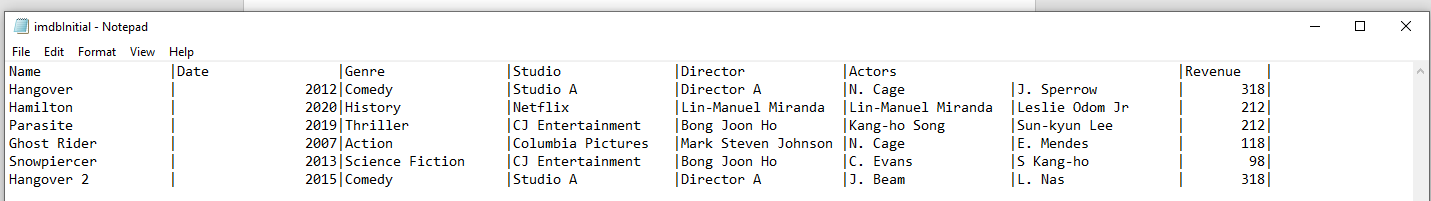
Ghost Rider;2007;Action;Columbia Pictures;Mark Steven Johnson;N. Cage;E. Mendes; 118

Snowpiercer;2013;Science Fiction;CJ Entertainment;Bong Joon Ho;C. Evans;S Kang-ho; 98

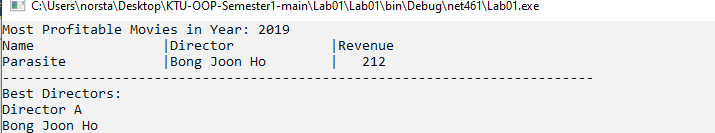
Hangover 2;2015;Comedy;Studio A;Director A;J. Beam;L. Nas;318

Rezultatai

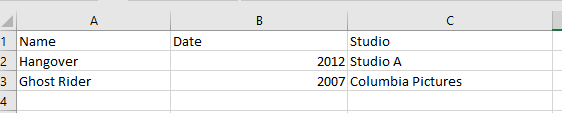
imdbinitial.txt:



Console:



MoviesWith.csv:



Antras testinis variantas

Pradiniai duomenys:

Imdb2.txt

Hangover;2012;Comedy;Studio A;Director A;N. Cage;J. Sperrow;318

Hamilton;2020;History;Netflix;Lin-Manuel Miranda;Lin-Manuel Miranda;Leslie Odom Jr;212

Parasite;2019;Thriller;CJ Entertainment;Bong Joon Ho;Kang-ho Song;Sun-kyun Lee;212

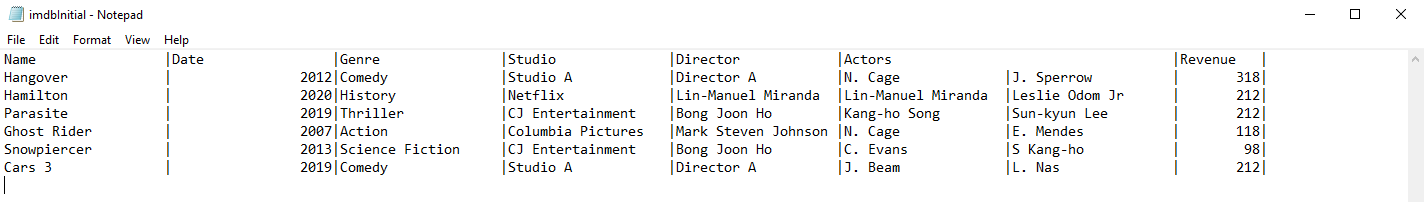
Ghost Rider;2007;Action;Columbia Pictures;Mark Steven Johnson;N. Cage;E. Mendes; 118

Snowpiercer;2013;Science Fiction;CJ Entertainment;Bong Joon Ho;C. Evans;S Kang-ho; 98

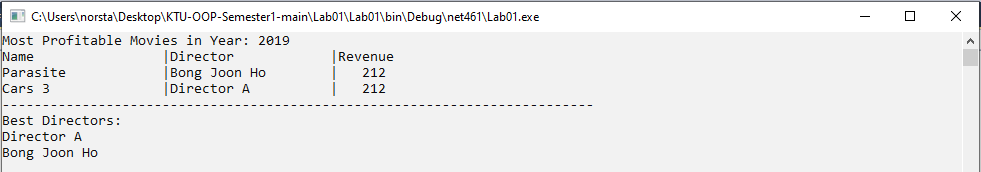
Cars 3;2019;Comedy;Studio A;Director A;J. Beam;L. Nas;212

Rezultatai:

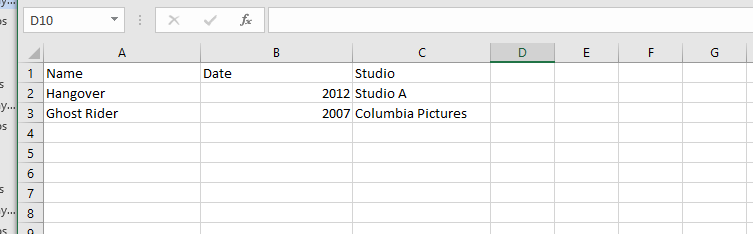
ImdbInitial.txt:



Console:



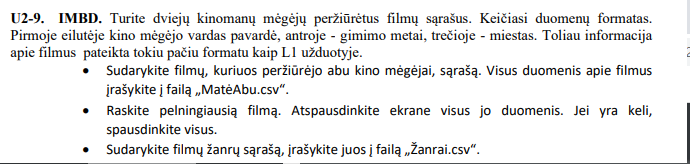
MoviesWith.csv:



## Dėstytojo pastabos

# Skaičiavimų klasė

## Darbo užduotis



## Programos tekstas

IMDB.cs:

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

using System.IO;

namespace Lab02

{

/// <summary>

/// IMDB Movie Object

/// </summary>

class IMDB

{

public string Name { get; set; }

public int Date { get; set; }

public string Genre { get; set; }

public string Studio { get; set; }

public string Director { get; set; }

public List<string> Actors { get; set; }

public int Revenue { get; set; }

public IMDB(string name,

int date,

string genre,

string studio,

string director,

string actor1,

string actor2,

int revenue)

{

Name = name;

Date = date;

Genre = genre;

Director = director;

Revenue = revenue;

Studio = studio;

Actors = new List<string>();

Actors.Add(actor1);

Actors.Add(actor2);

}

/// <summary>

/// Equals() Method Override

/// </summary>

public override bool Equals(object otherObj)

{

return this.Name == ((IMDB)otherObj).Name;

}

/// <summary>

/// Returns IMDB.Name's hashcode

/// </summary>

public override int GetHashCode()

{

return this.Name.GetHashCode();

}

/// <summary>

/// ToString() override

/// </summary>

/// <returns></returns>

public override string ToString() => ToString('|');

/// <summary>

/// ToString()

/// </summary>

/// <returns></returns>

public string ToString(char splitter)

{

return $"{this.Name,-20}{splitter}" +

$"{this.Date,20}{splitter}" +

$"{this.Genre,-20}{splitter}" +

$"{this.Studio,-20}{splitter}" +

$"{this.Director,-20}{splitter}" +

$"{this.Actors[0],-20}{splitter}" +

$"{this.Actors[1],-20}{splitter}" +

$"{this.Revenue,10}{splitter}";

}

}

}

User.cs:

using System;

using System.Collections.Generic;

using System.Text;

namespace Lab02

{

/// <summary>

/// User Class Object.

/// Saves Name, BirthDate, City, Seen Movies

/// </summary>

class User

{

public string Name { get; set; }

public DateTime BirthDate { get; set; }

public string City { get; set; }

//public List<IMDB> Movies { get { return movies; } }

private List<IMDB> movies;

public User(string name, DateTime birthDate, string city)

{

City = city;

Name = name;

movies = new List<IMDB>();

BirthDate = birthDate;

}

public User(string name, DateTime birthDate, string city, List<IMDB> \_movies)

{

City = city;

Name = name;

movies = \_movies;

BirthDate = birthDate;

}

/// <summary>

/// Adds the movie to users catologue

/// </summary>

public void AddMovie(IMDB imdb)

{

IMDB temp = AllMovieInfo.GetMovieByTitle(imdb.Name);

if (temp != null) // If the movie exists, copies the existing movie

imdb = temp;

AllMovieInfo.AddMovie(imdb, this); // Adds the movie to all movie catalogue

movies.Add(imdb); // Adds the movie to this User's catologue

}

public int GetMovieCount()

{

return movies.Count;

}

public IMDB GetMovieByIndex(int index)

{

try

{

return movies[index];

}

catch (Exception)

{

return null;

}

}

/// <summary>

/// Comparison Methods

/// </summary>

public static bool operator < (User user1, User user2)

{

return user1.GetMovieCount() < user2.GetMovieCount();

}

public static bool operator > (User user1, User user2)

{

return user1.GetMovieCount() < user2.GetMovieCount();

}

/// <summary>

/// ToString() override

/// </summary>

/// <returns></returns>

public override string ToString()

{

return $"{this.Name} {this.BirthDate} {this.City}";

}

}

}

AllMovieInfo.cs:

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Lab02

{

/// <summary>

/// Saves Important Information For ALL IMDB Class Objects

/// </summary>

static class AllMovieInfo

{

private static List<IMDB> AllMovies { get; set; }

private static Dictionary<string, int> DirectorPopularity;

private static Dictionary<string, IMDB> MovieTitleSearch;

private static Dictionary<string, List<IMDB>> GenreSearch;

private static Dictionary<IMDB, Dictionary<User, bool>> MovieUsers; // First Key -> Movie, Second Key - User, Returns if the User Has seen the movie

static AllMovieInfo()

{

AllMovies = new List<IMDB>();

DirectorPopularity = new Dictionary<string, int>();

MovieTitleSearch = new Dictionary<string, IMDB>();

MovieUsers = new Dictionary<IMDB, Dictionary<User, bool>>();

GenreSearch = new Dictionary<string, List<IMDB>>();

}

/// <summary>

/// Finds Directors With The Most Movies Directed. Returns List String Object.

/// </summary>

public static List<string> FindBestDirectors()

{

List<string> directors = new List<string>();

int filmsDirected = 0;

foreach (string key in DirectorPopularity.Keys)

{

if (filmsDirected < DirectorPopularity[key])

{

filmsDirected = DirectorPopularity[key];

directors.Clear();

directors.Add(key);

}

else if (filmsDirected == DirectorPopularity[key])

{

directors.Add(key);

}

}

return directors;

}

/// <summary>

/// Adds the movie to the AllMovieInfo Class. Adds the User who has seen the movie

/// </summary>

public static void AddMovie(IMDB imdb, User user)

{

if (!MovieTitleSearch.ContainsKey(imdb.Name)) // If Movie Does Not Exist, Add The movie

AddMovie(imdb);

AddUser(imdb, user); // Adds the User to the Movie User List

}

/// <summary>

/// Returns IMDB object by it's title

/// </summary>

public static IMDB GetMovieByTitle(string title)

{

if (MovieTitleSearch.ContainsKey(title))

return MovieTitleSearch[title];

else

return null;

}

/// <summary>

/// Adds a movie to a genre. If Genre does not exist, creates the genre.

/// </summary>

private static void AddToGenre(IMDB imdb)

{

if (!GenreSearch.ContainsKey(imdb.Genre)) // Adds the genre if it does not exist

GenreSearch.Add(imdb.Genre, new List<IMDB>());

GenreSearch[imdb.Genre].Add(imdb);

}

/// <summary>

/// Adds the movie to AllMovieInfo If it does not exist

/// </summary>

private static void AddMovie(IMDB imdb)

{

MovieTitleSearch.Add(imdb.Name, imdb);

AddToGenre(imdb);

AddDirector(imdb.Director);

AllMovies.Add(imdb);

}

/// <summary>

/// Adds User as a person who has seen the movie

/// </summary>

private static void AddUser(IMDB imdb, User user)

{

if (!MovieUsers.ContainsKey(imdb))

MovieUsers.Add(imdb, new Dictionary<User, bool>());

MovieUsers[MovieTitleSearch[imdb.Name]].Add(user, true);

}

/// <summary>

/// Adds a Movie Tally To The Director

/// </summary>

/// <param name="director"></param>

private static void AddDirector(string director)

{

/// <summary>

/// Records how many movies a director has directed.

/// </summary>

if (DirectorPopularity.ContainsKey(director) == false)

DirectorPopularity.Add(director, 0);

DirectorPopularity[director]++;

}

/// <summary>

/// Gets Movies that both users have seen

/// </summary>

/// <param name="user1"></param>

/// <param name="user2"></param>

/// <returns></returns>

public static List<IMDB> GetSeenWith(this User user1, User user2)

{

List<IMDB> output = new List<IMDB>();

for(int i = 0; i < user1.GetMovieCount(); i++)

{

IMDB imdb = user1.GetMovieByIndex(i);

if (MovieUsers[imdb].ContainsKey(user2))

output.Add(imdb);

}

return output;

}

/// <summary>

/// Gets the most profitable movies

/// </summary>

public static List<IMDB> GetMostProfitable()

{

int profit = int.MinValue;

List<IMDB> output = new List<IMDB>();

foreach (IMDB imdb in AllMovies)

{

if(profit < imdb.Revenue)

{

profit = imdb.Revenue;

output.Clear();

}

if (profit == imdb.Revenue)

output.Add(imdb);

}

return output;

}

/// <summary>

/// Returns all the keys of GenreSearch Object

/// </summary>

public static List<string> GetAllGenres()

{

return new List<string>(GenreSearch.Keys);

}

/// <summary>

/// Return all the movies with specified genre

/// </summary>

public static List<IMDB> GetMoviesWithGenre(string key)

{

if (GenreSearch.ContainsKey(key))

return GenreSearch[key];

else

return new List<IMDB>();

}

}

}

InOutHelpers.cs:

using System;

using System.Collections.Generic;

using System.IO;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Lab02

{

/// <summary>

/// File Input Output Helper

/// </summary>

static class InOutHelpers

{

// Text formatting const

private const int tSize = -20;

/// <summary>

/// Creates output file from scratch

/// </summary>

/// <param name="outputPath"></param>

public static void CreateOutputFile(string outputPath)

{

if (File.Exists(outputPath))

File.Delete(outputPath);

StreamWriter sw = new StreamWriter(outputPath);

sw.WriteLine("Initial Data:");

sw.Close();

}

/// <summary>

/// Writes Initial data from List User Object

/// </summary>

public static void WriteInitialData(this User user, string outputPath)

{

using (StreamWriter sw = new StreamWriter(outputPath, append:true))

{

sw.WriteLine();

sw.WriteLine($"{user.Name,tSize}|{user.BirthDate,tSize}|{user.City,tSize}");

sw.WriteLine();

sw.WriteMovieList(user, '|');

}

}

/// <summary>

/// REwrites Initial Data. Takes List<IMDB>, string outputPath. Returns void

/// </summary>

/// <param name="movies">List IMDB object</param>

/// <param name="outputPath"> output path to where to write the data</param>

public static void WriteMovieList(this StreamWriter sw, User user, char splitter)

{

if (user.GetMovieCount() > 0)

{

sw.WriteLine($"{"Name",tSize}{splitter}" +

$"{"Date",tSize}{splitter}" +

$"{"Genre",tSize}{splitter}" +

$"{"Studio",tSize}{splitter}" +

$"{"Director",tSize}{splitter}" +

$"{"Actor 1",tSize}{splitter}" +

$"{"Actor 2", tSize}{splitter}" +

$"{"Revenue",-10}{splitter}");

for (int i = 0; i < user.GetMovieCount(); i++)

{

IMDB movie = user.GetMovieByIndex(i);

sw.WriteLine(movie.ToString(splitter));

}

}

else

sw.WriteLine("No Movies Found");

}

/// <summary>

/// Writes Data to Output File

/// </summary>

/// <param name="movies">List IMDB Object</param>

/// <param name="outputPath">Output File Path</param>

public static void PrintMoviesToCSV(this List<IMDB> movies, string outputPath)

{

using (StreamWriter sw = new StreamWriter(outputPath))

{

WriteMovieList(sw, new User("temp",DateTime.Today,"temp",movies), ';');

}

}

/// <summary>

/// Reads Data, returns List IMDB Object

/// </summary>

/// <param name="filePath">Input File Object</param>

/// <returns></returns>

public static User Add(this List<User> list, string filePath)

{

List<User> output = new List<User>();

using (StreamReader sr = new StreamReader(filePath))

{

// Adds New User Data

string[] data = new string[3];

data[0] = sr.ReadLine();

data[1] = sr.ReadLine();

data[2] = sr.ReadLine().Trim();

User user = new User(data[0], DateTime.Parse(data[1]), data[2]);

list.Add(user);

// Adds User's Movies

string line;

while ((line = sr.ReadLine()) != null)

{

data = line.Split(';');

if (data.Length == 8) // Adds a movie for the user

{

IMDB imdb = new IMDB(data[0],

int.Parse(data[1]),

data[2],

data[3],

data[4],

data[5],

data[6],

int.Parse(data[7]));

user.AddMovie(imdb);

}

}

return user;

}

}

/// <summary>

/// Outputs movie genres to csv file

/// </summary>

/// <param name="outputFile"></param>

public static void OutputGenres(string outputFile)

{

List<string> genres = AllMovieInfo.GetAllGenres();

using (StreamWriter sw = new StreamWriter(outputFile))

{

if (genres.Count > 0)

{

foreach (var genre in genres)

{

sw.Write(genre);

foreach (IMDB imdb in AllMovieInfo.GetMoviesWithGenre(genre))

{

sw.Write($";{imdb.Name}");

}

sw.WriteLine();

}

}

else

sw.WriteLine("No Data Found");

}

}

/// <summary>

/// Print to screen function

/// </summary>

/// <param name="movies"></param>

public static void PrintToScreen(this List<IMDB> movies)

{

char splitter = '|';

Console.WriteLine("Most Profitable Movies");

if (movies.Count > 0)

{

Console.WriteLine($"{"Name",tSize}{splitter}" +

$"{"Date",tSize}{splitter}" +

$"{"Genre",tSize}{splitter}" +

$"{"Studio",tSize}{splitter}" +

$"{"Director",tSize}{splitter}" +

$"{"Actor 1",tSize}{splitter}" +

$"{"Actor 2",tSize}{splitter}" +

$"{"Revenue",-10}{splitter}");

foreach (IMDB movie in movies)

Console.WriteLine(movie.ToString(splitter));

}

else

Console.WriteLine("No Movies Found");

}

}

}

Program.cs:

using System;

using System.Collections.Generic;

namespace Lab02

{

class Program

{

const string CDdata1 = @"data1-1.txt";

const string CDdata2 = @"data1-2.txt";

const string CDinitial = @"imdbInitial.txt";

const string CDbothSeen = @"MatėAbu.csv";

const string CDGenres = @"Žanrai.csv";

static void Main(string[] args)

{

InOutHelpers.CreateOutputFile(CDinitial);

List<User> users = new List<User>();

users.Add(CDdata1).WriteInitialData(CDinitial);

users.Add(CDdata2).WriteInitialData(CDinitial);

users[0].GetSeenWith(users[1]).PrintMoviesToCSV(CDbothSeen);

AllMovieInfo.GetMostProfitable().PrintToScreen();

InOutHelpers.OutputGenres(CDGenres);

Console.Read();

int b = 1;

b.ToString();

}

// Add User.AddFile(other files)

// If new user added, append new data

// Skaitym

}

}

## Pradiniai duomenys ir rezultatai

Pradiniai duomenys:

data1-1.txt:

Tomas

2000-04-12

Kaunas

Hangover;2012;Comedy;Studio A;Director A;N. Cage;J. Sperrow;318

Titanic;2008;History;Studio B;Director C;N. Cage;J. Sperrow;318

Hamilton;2020;History;Netflix;Lin-Manuel Miranda;Lin-Manuel Miranda;Leslie Odom Jr;212

Ghost Rider;2007;Action;Columbia Pictures;Mark Steven Johnson;N. Cage;E. Mendes; 118

Snowpiercer;2013;Science Fiction;CJ Entertainment;Bong Joon Ho;C. Evans;S Kang-ho; 98

data1-2.txt:

Benas

1988-03-01

Vilnius

Hangover;2012;Comedy;Studio A;Director A;N. Cage;J. Sperrow;318

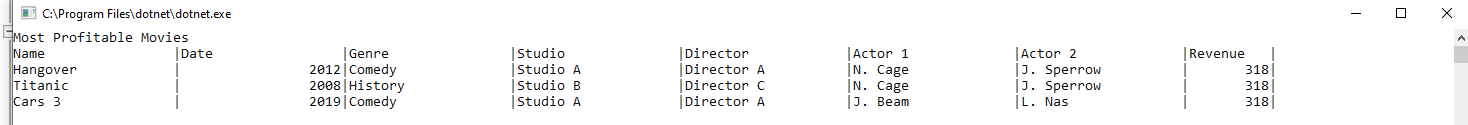
Parasite;2019;Thriller;CJ Entertainment;Bong Joon Ho;Kang-ho Song;Sun-kyun Lee;212

Ghost Rider;2007;Action;Columbia Pictures;Mark Steven Johnson;N. Cage;E. Mendes; 118

Cars 3;2019;Comedy;Studio A;Director A;J. Beam;L. Nas;318

Rezultatai:

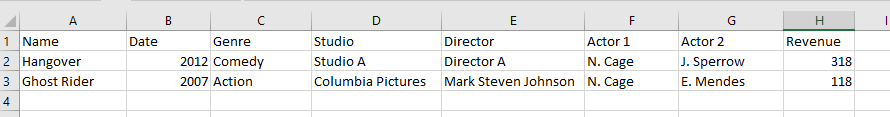
Console:



imdbInitial.txt:



MatėAbu.csv:



Žanrai.csv:



Pradiniai Duomenys:

data2-1.txt:

Tomas

2000-04-12

Kaunas

Hangover;2012;Comedy;Studio A;Director A;N. Cage;J. Sperrow;318

data2-2.txt:

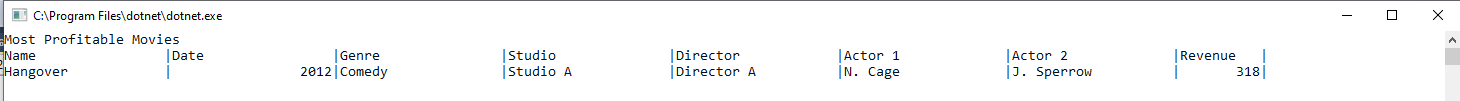
Benas

1988-03-01

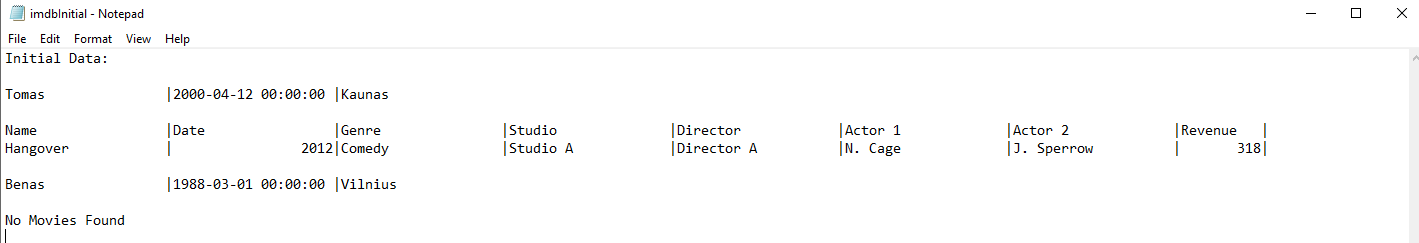
Vilnius

Rezultatai:

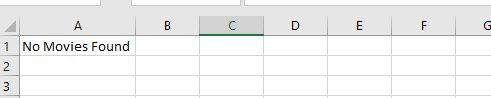
Console:



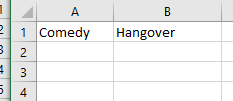
imdbInitial.txt:



MatėAbu.csv:



Žanrai.csv:



## Dėstytojo pastabos

# Konteineris

## Darbo užduotis

## Programos tekstas

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# Teksto analizė ir redagavimas

## Darbo užduotis

## Programos tekstas

## Pradiniai duomenys ir rezultatai

## Dėstytojo pastabos

# Paveldėjimas

## Darbo užduotis

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