МИНОБРНАУКИ РОССИИ

САНКТ-ПЕТЕРБУРГСКИЙ ГОСУДАРСТВЕННЫЙ

ЭЛЕКТРОТЕХНИЧЕСКИЙ УНИВЕРСИТЕТ

«ЛЭТИ» ИМ. В.И. УЛЬЯНОВА (ЛЕНИНА)

Кафедра ВТ

ОТЧЕТ

по лабораторной работе №1

по дисциплине «Объектно-ориентированное программирование»

ТЕМА: Разработка классов

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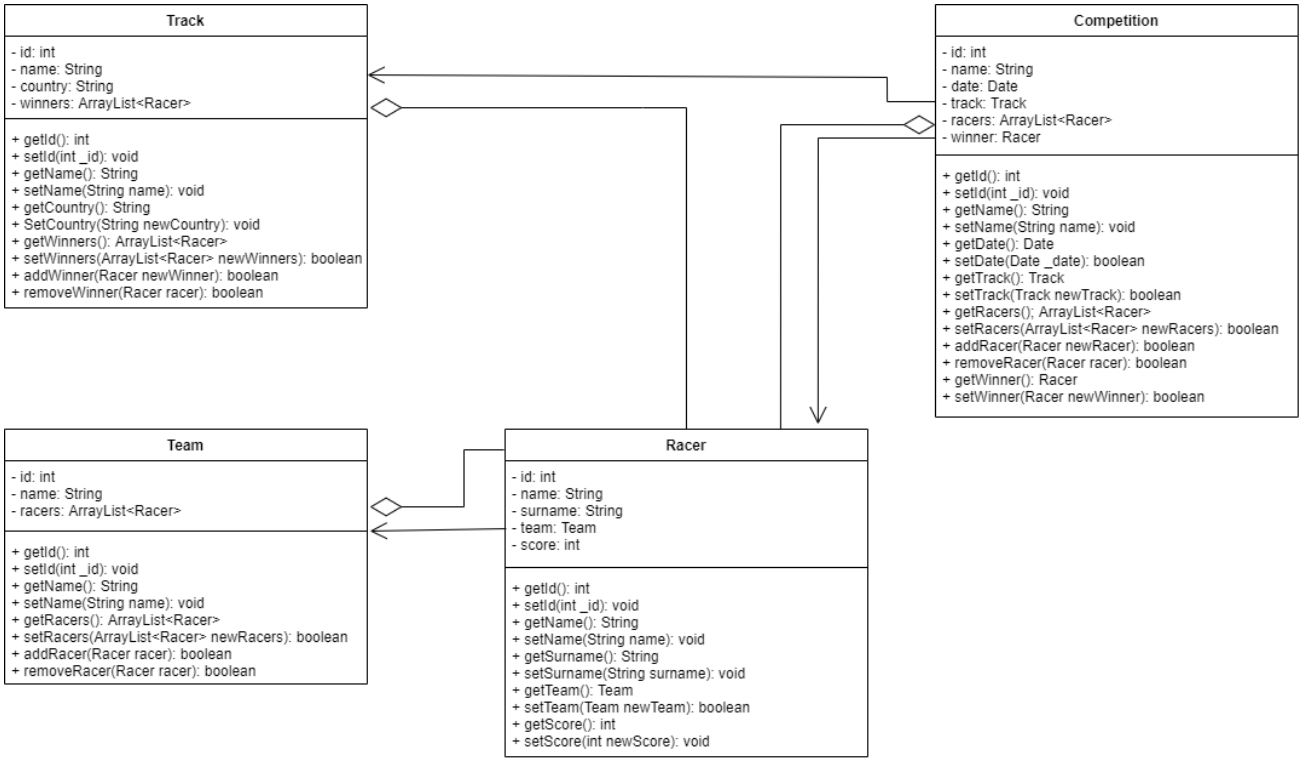
Содержание

UML-Диаграмма



Класс Racer (гонщик)

```
package Races;

public class Racer
{
    private int id;
    private String name;
    private String surname;
    private Team team;
    private int score = 0;

    public Racer(int _id, String _name, String _surname, Team _team)
    {
        id = _id;
        name = _name;
        surname = _surname;
        team = _team;
    }

    public int getId()
    {
        return id;
    }

    public void setId(int _id)
    {
        id = _id;
    }

    public String getName()
    {
        return name;
    }

    public void setName(String newName)
    {
        name = newName;
    }

    public String getSurname()
    {
        return surname;
    }

    public void setSurname(String newSurname)
    {
        surname = newSurname;
    }

    public Team getTeam()
    {
        return team;
    }

    public boolean setTeam(Team newTeam)
    {
        if(newTeam != null)
        {
            team = newTeam;
            return true;
        }
        return false;
    }
```

```
    public int getScore()
    {
        return score;
    }

    public void setScore(int newScore)
    {
        score = newScore;
    }

    @Override
    public String toString()
    {
        return name + " " + surname + ", score: " + score;
    }
}
```

Класс Team (команда)

```
package Races;

import java.util.*;

public class Team
{
    private int id;
    private String name;
    private ArrayList<Racer>racers;

    public Team(int _id, String t_name, ArrayList<Racer> t_racers)
    {
        id = _id;
        name = t_name;
        racers = t_racers;
    }

    public Team(int _id, String t_name)
    {
        id = _id;
        name = t_name;
        racers = new ArrayList<Racer>();
    }

    public int getId()
    {
        return id;
    }

    public void setId(int _id)
    {
        id = _id;
    }

    public String getName()
    {
        return name;
    }

    public void setName(String newName)
    {
        name = newName;
    }

    public ArrayList<Racer> getRacers()
    {
        return new ArrayList<Racer>(racers);
    }

    public boolean setRacers(ArrayList<Racer> newRacers)
    {
        if(newRacers != null)
        {
            racers = newRacers;
            return true;
        }
        return false;
    }

    public boolean addRacer(Racer racer)
    {
        if(racer != null)
```

```
        {
            racers.add(racer);
            racer.setTeam(this);
            return true;
        }
        return false;
    }

    public boolean removeRacer(Racer racer)
    {
        int index = racers.indexOf(racer);
        if(index != -1)
        {
            racers.remove(index);
            return true;
        }
        return false;
    }

    @Override
    public String toString()
    {
        return "Team: " + name;
    }
}
```

Класс Track (трасса)

```
package Races;

import java.util.*;

public class Track
{
    private int id;
    private String name;
    private String country;
    private ArrayList<Racer>winners;

    public Track(int _id, String t_name, String t_country)
    {
        id = _id;
        name = t_name;
        country = t_country;
        winners = new ArrayList<Racer>();
    }

    public int getId()
    {
        return id;
    }

    public void setId(int _id)
    {
        id = _id;
    }

    public String getName()
    {
        return name;
    }

    public void setName(String newName)
    {
        name = newName;
    }

    public String getCountry()
    {
        return country;
    }

    public void setCountry(String newCountry)
    {
        country = newCountry;
    }

    public ArrayList<Racer> getWinners()
    {
        return new ArrayList<Racer>(winners);
    }

    public boolean setWinners(ArrayList<Racer>newWinners)
    {
        if(newWinners != null)
        {
            winners = newWinners;
            return true;
        }
        return false;
```

```
    }

    public boolean addWinner(Racer newWinner)
    {
        if(newWinner != null)
        {
            winners.add(newWinner);
            return true;
        }
        return false;
    }

    public boolean removeWinner(Racer racer)
    {
        int index = winners.indexOf(racer);
        if(index != -1)
        {
            winners.remove(index);
            return true;
        }
        return false;
    }

    @Override
    public String toString()
    {
        return name + "(" + country + ")";
    }
}
```

Класс Competition (соревнование)

```
package Races;

import java.util.*;

public class Competition
{
    private int id;
    private String name;
    private Date date;
    private Track track;
    private ArrayList<Racer>racers;
    private Racer winner;

    public Competition(int _id, String _name, Date _date, Track _track,
ArrayList<Racer> _racers)
    {
        id = _id;
        name = _name;
        date = _date;
        track = _track;
        racers = _racers;
    }

    public int getId()
    {
        return id;
    }

    public void setId(int _id)
    {
        id = _id;
    }

    public String getName()
    {
        return name;
    }

    public void setName(String newName)
    {
        name = newName;
    }

    public Date getDate()
    {
        return date;
    }

    public boolean setDate(Date _date)
    {
        if(_date != null)
        {
            date = _date;
            return true;
        }
        return false;
    }

    public Track getTrack()
    {
        return track;
    }
```

```
    public boolean setTrack(Track newTrack)
    {
        if(newTrack != null)
        {
            track = newTrack;
            return true;
        }
        return false;
    }

    public ArrayList<Racer> getRacers()
    {
        return new ArrayList<Racer>(racers);
    }

    public boolean setRacers(ArrayList<Racer> newRacers)
    {
        if(newRacers != null)
        {
            racers = newRacers;
            return true;
        }
        return false;
    }
    public boolean addRacer(Racer newRacer)
    {
        if(newRacer != null)
        {
            racers.add(newRacer);
            return true;
        }
        return false;
    }
    public boolean removeRacer(Racer racer)
    {
        if(racer != null)
        {
            racers.remove(racer);
            return true;
        }
        return false;
    }
    public Racer getWinner()
    {
        return winner;
    }
    public boolean setWinner(Racer newWinner)
    {
        if(newWinner != null)
        {
            winner = newWinner;
            return true;
        }
        return false;
    }

    @Override
    public String toString()
    {
        return "Competition " + name + ". Track: " + track + ". Date: " +
date;
    }
}
```