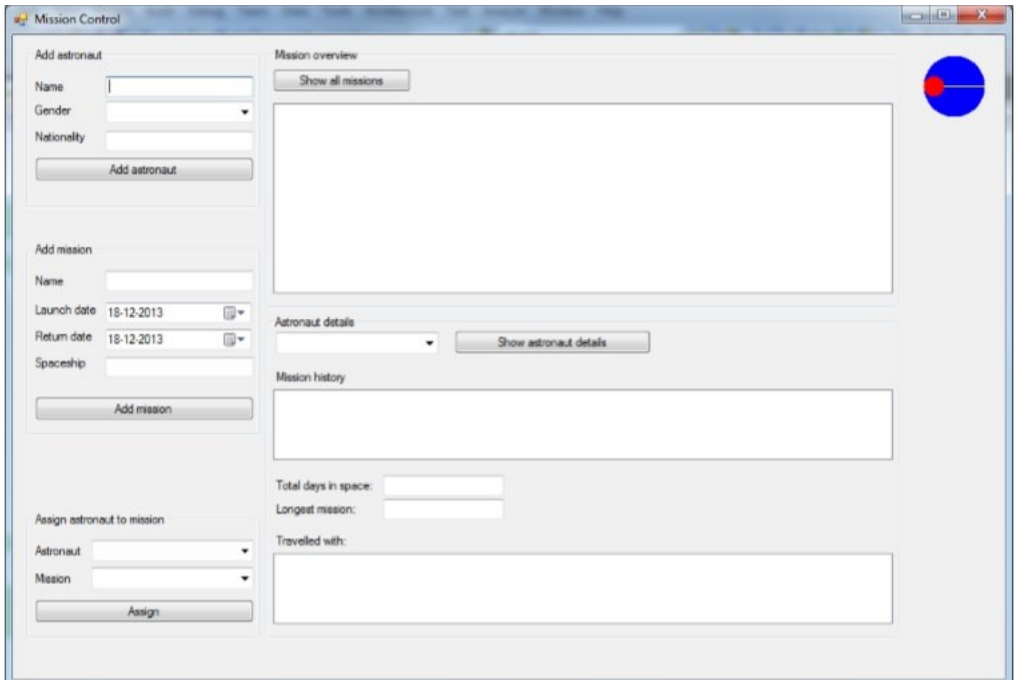
Advanced assignment: Mission Control

This is an advanced assignment which requires you to first design a UML Class Diagram and then implement it; this reflects what you should be able to do at the end of this semester. We advise you to start attempting this assignment when you feel comfortable about inheritance and want to test your current understanding of OOD in a more open case!

In this assignment you will provide an application for NASA where they can keep track of all the missions of the astronauts. It will be possible to see the mission history for every astronaut and it is possible to generate other statistics, for example: How many days has the astronaut been in space? Who travelled together with this astronaut?

Below you see the form design which is available for you in a solution file (so you don't have to create this form which is very time consuming!). You have the task to create the class diagram and program the functionalities of this application.



Application Description

- It must be possible to add astronauts to the system, the name, gender and nationality will be saved.
- It must be possible to add new missions to the system, the name, launch date, return date and type of spaceship will be saved.
- It must be possible to assign an astronaut to a mission. Multiple astronauts can be assigned to a mission.
- It must be possible to view all missions.
- It must be possible to view multiple details of an astronaut: which missions was the astronaut assigned to, how many days was the astronaut in space, what was the longest mission and who joined the astronaut on missions?

Assignment Description

- First create a UML class diagram of this description.

- Implement the class diagram.
- Make the application work.

Example Data

Use this data to test your application:

Missions:

Name	LaunchDate	ReturnDate	Spaceship
Apollo 11	16-07-1969	24-07-1969	CSM Columbia – LM Eagle
Gemini 8	16-03-1966	17-03-1966	Gemini SC8
Expedition 30-31	21-11-2011	01-07-2012	Soyuz TMA-03M
Expedition 17	08-04-2008	24-10-2008	Soyuz TMA-12
Expedition 44	11-06-2015	11-09-2015	Soyuz TMA 16M

Astronauts:

Name	Nationality	Missions assigned to
Neil Armstrong	American	Apolli 11, Gemini 8
Buzz Aldrin	American	Apollo 11
David Scott	American	Gemini 8
Michael Collins	American	Apollo 11
André Kuipers	Dutch	Expedition 30-31
Oleg Kononenko	Russian	Expedition 30-31, Expedition 17, Expedition 44
Don Petitt	American	Expedition 30-31
Sergey Volkov	Russian	Expedition 17
Kimiya Yui	Japanese	Expedition 44
Kjell N. Lindgren	American	Expedition 44