**MATLAB FS11 – Research Plan**

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**Group Name:** Group 7

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**General Introduction**

Social networks play an important role in many people's life. Especially in the last years social online communities like Facebook increased in size rapidly.

In such a network like Facebook, people have up to thousands of friends and pinions can spread quickly. By stating your opinion publicly, you influence and eventually change the opinions of people connected to you. This notably could be seen by the 2008's American presidential election, where campaigns for the candidates were extended to social networks. For future elections such networks might play an even more important role than today.

**Fundamental Questions**

* How can opinion formation in social online networks be modeled? In a setting where a group of selected agents try to manipulate the public opinion.
* How can these networks be modeled? In particular, to which extend can generated networks approximate real-world social online networks?
* How is opinion formation influenced by varying the model in terms of changing the graph structure, its size and different parameters?
* Is there an easy strategy of influencing opinion formation in social networks, i.e. is there a strategy for choosing people to be influenced that has an observable advantage over a strategy choosing those people purely at random?

**Expected Results**

We're expecting to have many possible ways of modeling social networks. Comparing different ways of generating random graphs, hopefully we will find a way to get graphs that serve as a good model for our purposes. Trying to find a strategy for influencing opinion formation, we expect the information about the structure of the underlying network to be crucial. Hopefully we will find a way to influence people's opinion in a better way than just influencing random people.

**References**

* Mohammad Afshar and Masoud Asadpour (2010) Opinion formation by informed agents. Journal of Articial Societies and Social Simulation [AA10
* ]
* Laguna et al (2003) Minorities in a Model for Opinion Formation [LZ04]

**Research Methods**

* Model for opinion formation based on the models proposed in [AA10
* ] and [LZ04]
* Generation of random graphs modeling social networks
* Simulation of random process to simulate opinion formation using Matlab, comparison of a rich set of parameters using simulation
* Numerical and graph theoretical methods to analyze the underlying graph

**Other**