CS 514
APPLIED ARTIFICIAL INTELLIGENCE
PROJECT 4

GDP Growth rate Bayesian Decision Network

PROJECT BY
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Abstract:

Bayesian growth rate predictor is a probabilistic inference system that predicts the whether GDP growth rate would be high, moderate or low and gives the probability of them happening.
The GDP growth rate of any economy is based on its major sectors- agriculture, manufacturing and services sector. These sectors growth rate in turn depends on various root node factors like monitory policy(Federal Bank policies), fiscal policy(governmental policy), inflation level, unemployment rates and external factors like FOREX investment flows.
Since the statistics for each country differs, I have used the statics of India for my project.

There is a decision node that Decision. This is the decision that central bank and government of a country take in response to the changes in the economy. These actions could be either expansionary or contractionary or wait-and-watch. Policies taken up that increase the money flow in the economy are expansionary and contractionary policies are taken up to decrease the money flow in the economy.

The utility node has Decision and inflation as its parents.

When we run the project, the utility values are shown for the decision, and the user can select the decision that has maximum utility.

Some assumptions were made to simplify the system. For example, rainfall node is not connected to manufacturing node or service sector node as rainfall doesn't have much impact on their growth rates. Any effect of rainfall is accounted for in the agriculture sector the affects the overall growth rate.

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Nodes

1. Inflation
2. Unemployment
3. Monetary Policy
4. Fiscal Policy
5. FOREX
6. Rainfall
7. Natural Disasters
8. Technology
9. Capital
10. Skill
11. Literacy rates
12. Global Policies
13. Agriculture
14. Manufacturing
15. Service sector
16. Growth Rate
17. Decision Node
18. Utility Node

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Manual

How to run:

1. Open .neta or .dne file in Netica
2. Compile by going to Network -> Compile
3. Change values as needed
4. Retract findings by pressing CTRL + R (while selecting 0 nodes)

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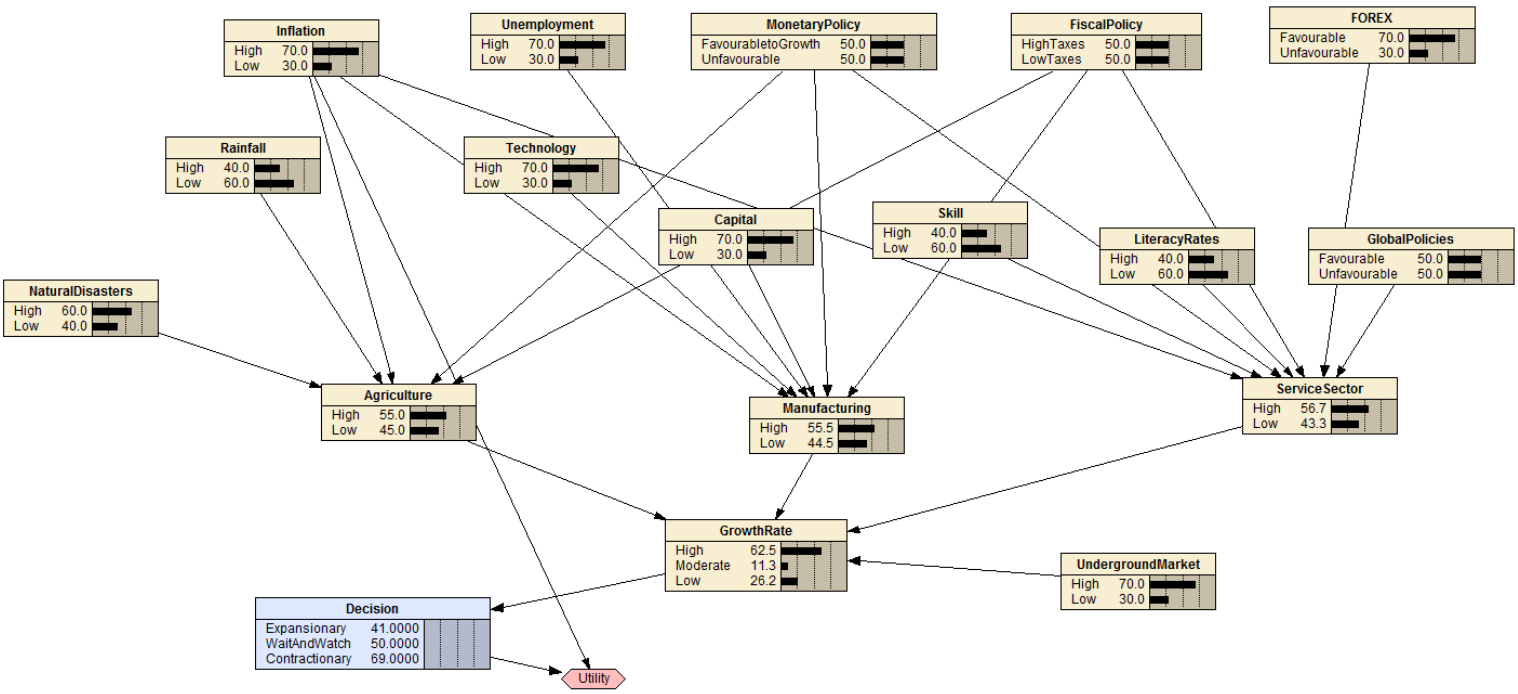
Sample Runs



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