

## Graph Modelling- Tournaments

Graphs can also be used to model tournaments.

**Round-Robin Tournaments;** A tournament where each team plays every other team exactly once and no ties are allowed is called a **round-robin tournament**. Such tournaments can be modeled using directed graphs where each team is represented by a vertex. Note that  $(a, b)$  is an edge (directed edge) **starting at a and ending at b if team a beats team b**. This graph is a simple directed graph, containing no loops because no team plays itself or multiple directed edges because no two teams play each other more than once. Such a directed graph model is shown below.

**Tournament Graph G**



From the tournament graph G above, we see that Stars is unbeaten in this competition because there is no Incoming Edges to the Stars.

We also see that the R's are winless in this competition because there are no outgoing edges from the R's.