Case:

A software development company has been contracted to develop a new mobile application for a client. The application will allow users to track their fitness goals and progress. The company has a team of 5 developers with varying skills, and a budget of $2000 to complete the project. The project has 5 tasks with varying durations, dependencies, and required skills, as shown below:

TASK ID	DURATION (HOURS)	REQUIRED SKILLS	DEPENDENCIES
0	10	Skill 0	None
1	5	Skill 1	Task 0
2	10	Skill 0 and Skill 1	Task 1
3	5	Skill 2	Task 1
4	10	Skill 3,4 and 1	Tasks 0,1,2,and 3

The company's development team consists of 5 members, each with varying skill sets, as shown below:

Task Member ID	Skills
0	Skills 0 and 1
1	Skill 1
2	Skills 2,3
3	Skill 1,3
4	Skill 1,2,3,4

The company's budget allows for a maximum cost of $2000, with a normal hourly rate of $20 and an overtime hourly rate of $30. Overtime is incurred for any hours worked beyond 4 hours in a single day. Additionally, the company must account for the risk of team members becoming sick and potentially missing workdays. The risk of a team member becoming sick is 20%, and if a team member becomes sick, they will miss 2 days of work.

The company wants to optimize the scheduling of tasks and team member assignments to minimize project duration and stay within budget constraints. The scheduling should account for task dependencies and team member skills, and team members can work a maximum of 8 hours per day. The company would like to use genetic algorithms to find the optimal schedule and team assignments, while also accounting for the risk of sick team members, to complete the project within the given budget and time constraints.