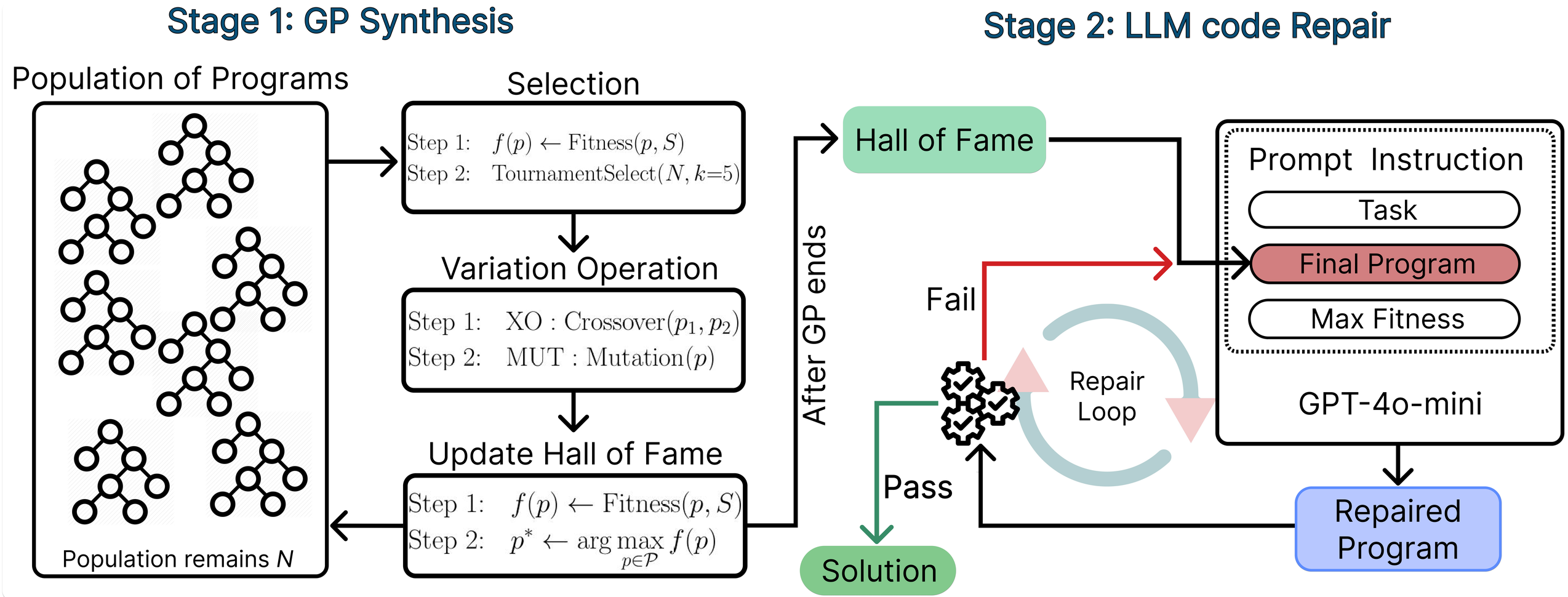
Stage 1: GP Synthesis
Stage 2: LLM code Repair
Population of Programs
Population remains N
Selection
Step 1: $f(p) \leftarrow \text{Fitness}(p, S)$
Step 2: $\text{TournamentSelect}(N, k{=}5)$
Variation Operation
Step 1: $\text{XO} : \text{Crossover}(p_1, p_2)$
Step 2: $\text{MUT} : \text{Mutation}(p)$
Update Hall of Fame
Step 1: $f(p) \leftarrow \text{Fitness}(p, S)$
Step 2: $p^* \leftarrow \arg\max_{p \in \mathcal{P}} f(p)$
After GP ends
Hall of Fame
Fail
Repair Loop
Pass
Solution
Prompt Instruction
Task
Final Program
Max Fitness
GPT-4o-mini
Repaired Program