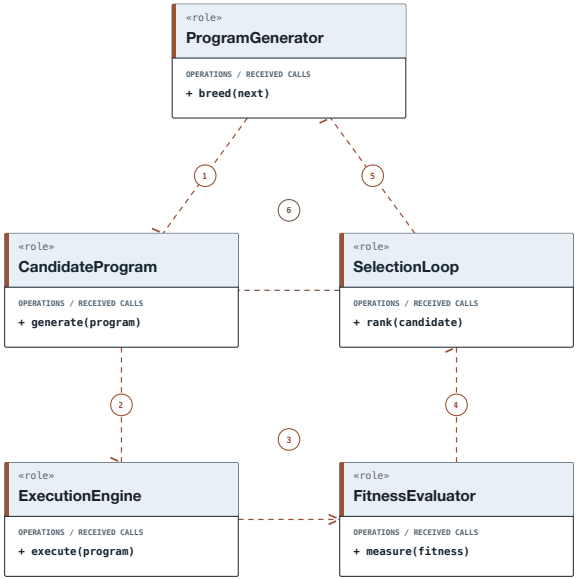
E07 Evaluator-guided program search

Evolution / UML CLASS VIEW / ANALYTICAL MODEL

Evolve executable candidates.

UML CLASS VIEW

dashed arrow: call dependency · brown: return/failure · analytical, not an observed trace



POINTCUT / PATTERN INTERFACE

CONTEXT	Harness or harness-adjacent behavior is represented as executable programs.
TRIGGER	Candidate programs are generated, mutated, or selected.
STRUCTURE	Generator, executor, fitness evaluator, archive, and next-generation policy.
EFFECT	A next generation is selected from measured executable candidates.

CONTRACT / REQUIRED BEHAVIOR

REQUIRES	Candidate runtime and evaluation suite are isolated and available.
ENSURES	Every selected candidate has execution and fitness provenance.
INVARIANT	Evaluation budget and security boundaries hold across all candidates.
VIOLATION	Crash, timeout, unsafe code, or invalid fitness removes or quarantines candidate.

RELATIONSHIPS / ANALYTICAL CALLS

number · caller → callee · message

1 ProgramGenerator → CandidateProgram generate(program)
2 CandidateProgram → ExecutionEngine execute(program)
3 ExecutionEngine → FitnessEvaluator measure(fitness)
4 FitnessEvaluator → SelectionLoop rank(candidate)
5 SelectionLoop → ProgramGenerator breed(next)
6 SelectionLoop ↩ CandidateProgram archive(best)

VARIATION / TEST / NEGATIVE CONTROL

VARIATION	AlphaEvolve-like search, evolutionary archive, program mutation, and fitness gates.
TEST_OBLIGATION	Test execution, unsafe candidate, timeout, fitness error, and generation update.
NEGATIVE_CONTROL	Prompt-level variation with no executable search is not E07.