```
(gurobi_env) C:\Users\DELL\OneDrive\Desktop\CS 357>python bus_schedule.py
Set parameter Username
Academic license - for non-commercial use only - expires 2024-10-23
Set parameter Presolve to value 0
Set parameter MIPFocus to value 2
Set parameter NodeLimit to value 10
Set parameter MIPGap to value 1e-06
Set parameter Heuristics to value 0
Gurobi Optimizer version 10.0.3 build v10.0.3rc0 (win64)

CPU model: 11th Gen Intel(R) Core(TM) i5-1155G7 @ 2.50GHz, instruction set [SSE2|AVX|AVX2|AVX512]
Thread count: 4 physical cores, 8 logical processors, using up to 8 threads

Optimize a model with 14 rows, 24 columns and 32 nonzeros
Model fingerprint: 0xf0b497d4
Variable types: 8 continuous, 16 integer (16 binary)
Coefficient statistics:
  Matrix range     [1e+00, 2e+01]
  Objective range  [3e+00, 2e+03]
  Bounds range     [1e+00, 1e+00]
  RHS range        [1e+00, 5e+01]

User MIP start produced solution with objective 2970.18 (0.03s)
Loaded user MIP start with objective 2970.18

Variable types: 0 continuous, 24 integer (19 binary)

Root relaxation: objective 2.947550e+03, 4 iterations, 0.01 seconds (0.00 work units)

    Nodes    |    Current Node    |     Objective Bounds      |     Work
 Expl Unexpl |  Obj  Depth IntInf | Incumbent    BestBd   Gap | It/Node Time
```

```
*    0     0               0    2947.5502278 2947.55023  0.00%     -    0s

Explored 1 nodes (4 simplex iterations) in 0.06 seconds (0.00 work units)
Thread count was 8 (of 8 available processors)

Solution count 2: 2947.55 2970.18

Optimal solution found (tolerance 1.00e-06)
Best objective 2.947550227761e+03, best bound 2.947550227761e+03, gap 0.0000%
Gurobi Optimizer version 10.0.3 build v10.0.3rc0 (win64)

CPU model: 11th Gen Intel(R) Core(TM) i5-1155G7 @ 2.50GHz, instruction set [SSE2|AVX|AVX2|AVX512]
Thread count: 4 physical cores, 8 logical processors, using up to 8 threads

Optimize a model with 4 rows, 4 columns and 2 nonzeros
Model fingerprint: 0x33c3bf48
Variable types: 1 continuous, 3 integer (3 binary)
Coefficient statistics:
  Matrix range     [1e+00, 1e+00]
  Objective range  [3e+00, 5e+02]
  Bounds range     [1e+00, 1e+00]
  RHS range        [1e+00, 1e+00]
Found heuristic solution: objective 2.0000000

Explored 0 nodes (0 simplex iterations) in 0.00 seconds (0.00 work units)
Thread count was 1 (of 8 available processors)

Solution count 1: 2

Optimal solution found (tolerance 1.00e-04)
```

```
Best objective 2.000000000000e+00, best bound 2.000000000000e+00, gap 0.0000%
Gurobi Optimizer version 10.0.3 build v10.0.3rc0 (win64)

CPU model: 11th Gen Intel(R) Core(TM) i5-1155G7 @ 2.50GHz, instruction set [SSE2|AVX|AVX2|AVX512]
Thread count: 4 physical cores, 8 logical processors, using up to 8 threads

Optimize a model with 4 rows, 4 columns and 2 nonzeros
Model fingerprint: 0x09de4039
Variable types: 1 continuous, 3 integer (3 binary)
Coefficient statistics:
  Matrix range     [1e+00, 1e+00]
  Objective range  [3e+00, 9e+02]
  Bounds range     [1e+00, 1e+00]
  RHS range        [1e+00, 1e+00]
Found heuristic solution: objective 2.0000000

Explored 0 nodes (0 simplex iterations) in 0.00 seconds (0.00 work units)
Thread count was 1 (of 8 available processors)

Solution count 1: 2

Optimal solution found (tolerance 1.00e-04)
Best objective 2.000000000000e+00, best bound 2.000000000000e+00, gap 0.0000%
Gurobi Optimizer version 10.0.3 build v10.0.3rc0 (win64)

CPU model: 11th Gen Intel(R) Core(TM) i5-1155G7 @ 2.50GHz, instruction set [SSE2|AVX|AVX2|AVX512]
Thread count: 4 physical cores, 8 logical processors, using up to 8 threads

Optimize a model with 14 rows, 24 columns and 32 nonzeros
Model fingerprint: 0xf0b497d4
Variable types: 8 continuous, 16 integer (16 binary)
```

```
Coefficient statistics:
  Matrix range     [1e+00, 2e+01]
  Objective range  [3e+00, 2e+03]
  Bounds range     [1e+00, 1e+00]
  RHS range        [1e+00, 5e+01]

Continuing optimization...


Explored 1 nodes (4 simplex iterations) in 0.01 seconds (0.00 work units)
Thread count was 8 (of 8 available processors)

Solution count 2: 2947.55 2970.18

Optimal solution found (tolerance 1.00e-06)
Best objective 2.947550227761e+03, best bound 2.947550227761e+03, gap 0.0000%
Selected Bus Plans: [1, 4]
Objective Value: 2947.5502277607984
```