

```
1 //FOLDER: parallel_example
2
3 /*
4  * This is an example program for PGAPack. The objective is to maximize the
5  * function  $y=x^2$  in [0,255].
6  */
7
8 #include <pgapack.h>
9
10 double EvaluationFunction(PGAContext *, int, int);
11
12 /*****
13  *          main program
14  *****/
15 int main( int argc, char **argv ) {
16     PGAContext *ctx;
17     int myid, indlen;
18
19     MPI_Init(&argc, &argv);
20     MPI_Comm_rank(MPI_COMM_WORLD, &myid);
21     if (myid == 0)
22     {
23         printf("String length = ");
24         scanf("%d", &indlen);
25     }
26
27     MPI_Bcast(&indlen, 1, MPI_INT, 0, MPI_COMM_WORLD);
28
29     ctx = PGACreate(&argc, argv, PGA_DATATYPE_BINARY, indlen, PGA_MAXIMIZE);
30     PGASetPopSize(ctx, 20);
31     PGASetMaxGAIterValue(ctx, 100);
32     PGASetPrintFrequencyValue(ctx, 1);
33     PGASetRandomSeed(ctx, 1);
34
35     PGASetUp(ctx);
36     PGARun(ctx, EvaluationFunction);
37     PGADestroy(ctx);
38
39     MPI_Finalize();
40
41     return(0);
42 }
43
44 /*****
45  * user defined evaluation function
46  * ctx - contex variable
47  * p - chromosome index in population
48  * pop - which population to refer to
49  *****/
50 double EvaluationFunction(PGAContext *ctx, int p, int pop) {
51     int int_val, stringlen;
52
53     stringlen = PGAGetStringLength(ctx);
54     int_val = PGAGetIntegerFromBinary(ctx, p, pop, 0, stringlen-1);
55
56     return((double) int_val*int_val);
57 }
58 }
```