```
diff function.c
double * f(double x1, double x2, double dx1, double dx2) {
  double w3, w4, w5, dw3, dw4, dw5, df[2];
  w3 = x1 * x2;
  dw3 = dx1 * x2 + x1 * dx2:
  w4 = sin(x1);
  dw4 = cos(x1) * dx1;
  w5 = w3 + w4:
  dw5 = dw3 + dw4;
  df[0] = w5;
  df[1] = dw5;
  return df;
function.c
                      diff_function.c
                                              diff_function.o
                                      C compiler
               AD tool
```