

Solution to exercise 2

```
using namespace RooFit ;  
void ex2()  
{  
    RooWorkspace w("w",kTRUE) ;  
  
    // Make Gaussian pdf  
    w.factory("Gaussian::g(x[-10,10],mean[-10,10],sigma[3,0.1,10])" ) ;  
  
    // Make Chebychev pdf  
    w.factory("Chebychev::bkg(x,{a0[0,-1,1],a1[0.1,-1,1]})" ) ;  
  
    // Make extended composite model  
    w.factory("SUM::model(Nsig[0,10000]*g,Nbkg[0,10000]*bkg)" ) ;  
  
    // Generate a small dataset  
    RooDataSet* data = w::model.generate(w::x,500) ;
```

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```
// Fit model to data, save complete fit result
RooFitResult* r = w::model.fitTo(*data, Save()) ;

// Plot data, model, background component of model
RooPlot* frame = w::x.frame() ;
data->plotOn(frame) ;
w::model.plotOn(frame) ;
w::model.plotOn(frame, Components("bkg"), LineStyle(kDashed)) ;
frame->Draw() ;

// Visualize uncertainties on total pdf, background component
w::model.plotOn(frame, VisualizeError(*r), MoveToBack());
w::model.plotOn(frame, VisualizeError(*r), Components("bkg"),
                 MoveToBack(), FillColor(kYellow)) ;
frame->Draw() ;
}
```