```
#Import JuMP package to build an optimization model
using JuMP
#Import HiGHS solver
using HiGHS

#Create a JuMP model named picframe1 that will be solved using the
HiGHS solver
nutrition = Model(HiGHS.Optimizer);

#defining raw carrots, baked potatoes, wheat bread, cheddar cheese,
and peanut butter
@variable(nutrition, x1 >= 0);
@variable(nutrition, x2 >= 0);
@variable(nutrition, x3 >= 0);
@variable(nutrition, x4 >= 0);
@variable(nutrition, x5 >= 0);

#Constraints
@constraint(nutrition, calories, 23x1 + 171x2 +65x3 + 112x4 + 188x5 >=
2000);
@constraint(nutrition, fat, 0.1x1 + 0.2x2 + 9.3x4 + 16x5 >= 50);
@constraint(nutrition, protein, 0.6x1 + 3.7x2 + 2.2x3 + 7x4 + 7.7x5 >=
100);
@constraint(nutrition, carbs, 6x1 + 30x2 +13x3 + 2x5 >= 250);

#Objective Function
@objective(nutrition, Min, 0.14x1 + 0.12x2 + 0.2x3 + 0.75x4 + 0.15x5);

#Print out the model
print(nutrition)
latex_formulation(nutrition)

optimize!(nutrition)
# Print results
@show value(x1)
@show value(x2)
@show value(x3)
@show value(x4)
@show value(x5)
@show objective_value(nutrition)
```

```
Min 0.14 x1 + 0.12 x2 + 0.2 x3 + 0.75 x4 + 0.15 x5
Subject to
 calories : 23 x1 + 171 x2 + 65 x3 + 112 x4 + 188 x5 ≥ 2000
 fat : 0.1 x1 + 0.2 x2 + 9.3 x4 + 16 x5 ≥ 50
 protein : 0.6 x1 + 3.7 x2 + 2.2 x3 + 7 x4 + 7.7 x5 ≥ 100
 carbs : 6 x1 + 30 x2 + 13 x3 + 2 x5 ≥ 250
 x1 ≥ 0
 x2 ≥ 0
 x3 ≥ 0
```

```
 x4 ≥ 0
 x5 ≥ 0
Running HiGHS 1.7.2 (git hash: 5ce7a2753): Copyright (c) 2024 HiGHS
under MIT licence terms
Coefficient ranges:
  Matrix [1e-01, 2e+02]
  Cost   [1e-01, 8e-01]
  Bound  [0e+00, 0e+00]
  RHS    [5e+01, 2e+03]
Presolving model
4 rows, 4 cols, 15 nonzeros  0s
4 rows, 2 cols, 8 nonzeros  0s
Presolve : Reductions: rows 4(-0); columns 2(-3); elements 8(-10)
Solving the presolved LP
Using EKK dual simplex solver - serial
  Iteration        Objective     Infeasibilities num(sum)
          0     0.0000000000e+00 Pr: 4(975) 0s
          3     2.3177549195e+00 Pr: 0(0) 0s
Solving the original LP from the solution after postsolve
Model   status      : Optimal
Simplex   iterations: 3
Objective value     :  2.3177549195e+00
HiGHS run time      :          0.00
Optimal Solution:
value(x1) = 0.0
value(x2) = 7.714669051878355
value(x3) = 0.0
value(x4) = 0.0
value(x5) = 9.279964221824686
objective_value(nutrition) = 2.3177549194991056

2.3177549194991056
```