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rm(list=ls()) # Clear the environment
install.packages("ggplot2",dependencies=TRUE)
install.packages("readxl",dependencies=TRUE)
install.packages("corrplot",dependencies=TRUE)
library(ggplot2);library(readxl);library(corrplot)
exchanges<-read_excel("exchanges.xlsx") # Read in working directory
data<-exchanges
data1<-data[-1] # Remove the first column from data
# New dataset with returns instead of prices: (log(x)-log(x-1))
data2<-as.data.frame(sapply(data1,function(x)diff(log(x),lag=1)))
attach(data2) # Bring the names of the variables directly into memory
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# Multiple linear regression [btc_coinbase on all other variables]
model_3<-lm(btc_coinbase~.,data=data2)
summary(model_3)
# Get and plot residuals
res<-model_3$residuals
plot(res,type='l')
install.packages("rstanarm",dependencies=TRUE)
library(rstanarm)
model_b<-stan_glm(btc_coinbase~.,data=data2)
summary(model_b, digits=3)
# Get and plot residuals
resb<-model_b$residuals
plot(resb,type='l')
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model_b<-stan_glm(btc_coinbase~.,chains=1,seed=12345,iter=250,
prior=student_t(df=4,0,2.5),prior_intercept=cauchy(0,10),prior_aux =
exponential(1/2),data=data2)
summary(model_b, digits=3)
print(model_b)
prior_summary(model_b) # To see the chosen priors
library(bayesplot)
mcmc_dens(model_b)
library(bayestestR)
hdi(model_b)
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library(rstanarm)
data(wells)
wells$dist100 <- wells$dist / 100
head(wells)
library(ggplot2)
ggplot(wells,aes(x=dist100,y=after_stat(density),fill=switch==1)) +
geom_histogram() + scale_fill_manual(values=c("gray30", "skyblue"))
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-----
t_prior <- student_t(df = 7, location = 0, scale = 2.5)
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fit1<-stan_glm(switch ~ dist100,data=wells,seed = 12345,
  family = binomial(link = "logit"),
  prior = t_prior, prior_intercept = t_prior)
summary(fit1,digits=3)
round(posterior_interval(fit1, prob = 0.5), 3) # digits=3
fit2 <- update(fit1, formula = switch ~ dist100 + arsenic)
round(coef(fit2), 3)
summary(fit2,digits=3)
fit3<-stan_glm(switch ~ arsenic+assoc+educ+dist100,data=wells,
family = binomial(link = "logit"),seed = 12345,
  prior = t_prior, prior_intercept = t_prior)
summary(fit3,digits=3)

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t_prior <- student_t(df = 7, location = 0, scale = 2.5)
fit1<-stan_glm(switch ~ dist100,data=wells,seed = 12345,
  family = binomial(link = "logit"),
  prior = t_prior, prior_intercept = t_prior)
summary(fit1,digits=3)
pr_switch <- function(x, ests) plogis(ests[1] + ests[2] * x)
coef(fit1)[1]; coef(fit1)[2]
aa=seq(0,12,0.25)
plot(aa,pr_switch(aa,coef(fit1)),type='l')

```