1. Write a `pois.prob()` function that computes $P(X = x)$, $P(X \neq x)$, $P(X < x)$, $P(X \leq x)$, $P(X > x)$, and $P(X \geq x)$. Enable the user to specify the rate parameter λ.

```r
pois.prob <- function(x, size, lambda, type="<="){
  # Use dpois and ppois to conditionally return the correct probability
  #dpois is for PMF
  #ppois is for CDF

  #cdf of anything negative should just be zero
  if (x-1 < 0){
    sub <- 0
  }
  else{
    sub=lambda-1
  }

  #prob that x=__ is just the pmf(__)
  equal <- dpois(x,lambda)
  #prob that x!=__ is 1-pmf(__)
  not.equal <- 1- dpois(x,lambda)
  #prob that x<__ is cdf(__ - 1)
  less <- ppois(sub,lambda,TRUE)
  #prob that x <= __ is cdf(__)
  less.or.equal <- ppois(x,lambda,TRUE)
  #prob that x> __ is 1-cdf(__)
  greater <- 1- ppois(x,lambda,TRUE)
  #prob that x>= __ is 1-cdf(__-1)
  greater.or.equal <- 1-ppois(sub,lambda,TRUE)

  to.return <- data.frame(c("Equal", "Not Equal", "Less Than", "Less than or Equal to",
                            "Greater Than", "Greater Than or Equal to"),
                          c(equal,not.equal,less,less.or.equal,greater,greater.or.equal))
  return(to.return)
}
```

2. Write a `beta.prob()` function that computes $P(X = x)$, $P(X \neq x)$, $P(X < x)$, $P(X \leq x)$, $P(X > x)$, and $P(X \geq x)$ for a beta distribution. Enable the user to specify the shape parameters α and β.

```r
beta.prob <- function(x, size, alpha, beta, type="<="){
  # Use dbeta and pbeta to conditionally return the correct probability
  #dbeta is for PMF
  #pbeta is for CDF

  #prob that x=__ is just 0
  equal <-0
  #prob that x!=__ is 1
  not.equal <- 1
  #prob that x<__ is cdf(__)
  less <- pbeta(x,alpha,beta)
  #prob that x <= __ is cdf(__)
  less.or.equal <- pbeta(x,alpha,beta)
  #prob that x> __ is 1-cdf(__)
  greater <- 1- pbeta(x,alpha,beta)
  #prob that x>= __ is 1-cdf(__)
  greater.or.equal <- 1-pbeta(x,alpha,beta)

  to.return <- data.frame(c("Equal", "Not Equal", "Less Than", "Less than or Equal to",
                            "Greater Than", "Greater Than or Equal to"),
                          c(equal,not.equal,less,less.or.equal,greater,greater.or.equal))
  return(to.return)

}
```