IT24103549

```
> # Problem 1
> # Parameters
> n <- 50
> p <- 0.85
>
> #i
> cat("X follows a Binomial distribution: X ~ Binomial(50, 0.85)\n")
X follows a Binomial distribution: X ~ Binomial(50, 0.85)
> #ii
> prob_at_least_47 <- 1 - pbinom(46, n, p)  # P(X >= 47)
> cat("Probability that at least 47 students passed the test: ", prob_at_least_47, "\n")
Probability that at least 47 students passed the test:  0.04604658
>
> #problem 2
> lambda <- 12
> #i
> cat("Random variable X represents the number of customer calls per hour.\n")
Random variable X represents the number of customer calls per hour.
> #ii
> cat("X follows a Poisson distribution: X ~ Poisson(12)\n")
X follows a Poisson distribution: X ~ Poisson(12)
> #iii
> prob_exactly_15 <- dpois(15, lambda)
> cat("Probability that exactly 15 calls are received in an hour: ", prob_exactly_15, "\n")
Probability that exactly 15 calls are received in an hour:  0.07239112
```