

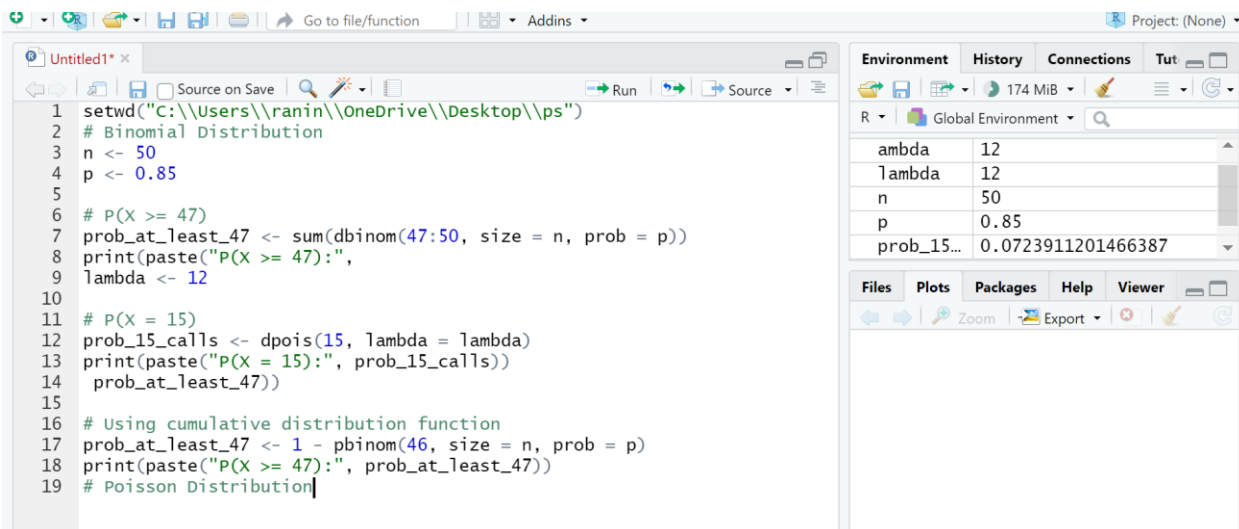
# Probability and Statistics -

## IT2120

### Lab Sheet 6

IT23104172

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The screenshot shows the RStudio IDE interface. The main editor window displays R code for calculating probabilities using binomial and Poisson distributions. The code includes comments and function calls like `setwd`, `sum(dbinom)`, `dpois`, and `1 - pbinom`. The Environment pane on the right shows the current workspace with variables `ambda`, `lambda`, `n`, `p`, and `prob_15...` and their values.

```
1 setwd("c:\\Users\\ranin\\OneDrive\\Desktop\\ps")
2 # Binomial Distribution
3 n <- 50
4 p <- 0.85
5
6 # P(X >= 47)
7 prob_at_least_47 <- sum(dbinom(47:50, size = n, prob = p))
8 print(paste("P(X >= 47):", prob_at_least_47))
9 lambda <- 12
10
11 # P(X = 15)
12 prob_15_calls <- dpois(15, lambda = lambda)
13 print(paste("P(X = 15):", prob_15_calls))
14
15
16 # Using cumulative distribution function
17 prob_at_least_47 <- 1 - pbinom(46, size = n, prob = p)
18 print(paste("P(X >= 47):", prob_at_least_47))
19 # Poisson Distribution
```

Variable	Value
ambda	12
lambda	12
n	50
p	0.85
prob_15...	0.0723911201466387

```
> setwd("C:\\Users\\\\ranin\\OneDrive\\Desktop\\ps")
> n <- 50
> p <- 0.85
> prob_at_least_47 <- sum(dbinom(47:50, size = n, prob = p))
> print(paste("P(X >= 47):", prob_at_least_47))
[1] "P(X >= 47): 0.0460465788923018"
> prob_at_least_47 <- 1 - pbinom(46, size = n, prob = p)
> print(paste("P(X >= 47):", prob_at_least_47))
[1] "P(X >= 47): 0.0460465788923019"
> lambda <- 12
> prob_15_calls <- dpois(15, lambda = lambda)
> print(paste("P(X = 15):", prob_15_calls))
[1] "P(X = 15): 0.0723911201466387"
>
```