

HS - 616 Questions week-wise

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Lecture 1a

If $x \leftarrow 1:4$ and $y \leftarrow 5:8$ what is the output of $x + y$?

- A vector with values 6 8 10 12
- A numeric integer with value 6
- A numeric integer with values 6 8 10 12
- Running the statement gives an error

Lecture 1b

What is the `class()` of the vector 'var' in the statement `var <- runif(10) < 0.5`?

- Logical
- Integer
- Character
- List

Lecture 2a

Which of the following equation represents the sensitivity of a test?

- $\text{sensitivity} = \text{number of true positives} / \text{number with disease}$
- $\text{sensitivity} = \text{number of true negatives} / \text{number without disease}$
- $\text{sensitivity} = \text{number with disease} / \text{total population}$
- $\text{sensitivity} = \text{number of true positives} / \text{number of true negatives}$

Lecture 2b

Poisson Probability Distribution is a type of

- Discrete Probability Distribution
- Continuous Probability Distribution
- Cumulative distribution
- Random number generation

Lecture 3a

Given a matrix

```
##      [,1] [,2] [,3]
## [1,]    1    5    9
## [2,]    2    6   10
## [3,]    3    7   11
## [4,]    4    8   12
```

what is the output of the statement `x[1,]`

- `[1] 1 5 9`
- `[1] 1`
- `[1] 1 2 3 4`
- System generates a syntax error

Lecture 3b

Given a matrix A

```
##      [,1] [,2] [,3]
## [1,]    1    5    9
## [2,]    2    6   10
## [3,]    3    7   11
## [4,]    4    8   12
```

what is the output of `A * Transpose(A)`

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```
##      [,1] [,2] [,3] [,4]
## [1,]  107  122  137  152
## [2,]  122  140  158  176
## [3,]  137  158  179  200
## [4,]  152  176  200  224
```

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```
##      [,1] [,2] [,3] [,4]
## [1,]    1    0    0    0
## [2,]    0    1    0    0
## [3,]    0    0    1    0
## [4,]    0    0    0    1
```

- `[1] 1 2 3 4`
- System generates a syntax error

Lecture 4a

To find the square of each number from 1 to N, which of the following is the fastest approach

- `x <- 1:N w <- x^2`
- `y <- numeric()` for (i in 1:N) `y[i] <- i^2`
- `y <- numeric(N)` for (i in 1:N) `y[i] <- i^2`

Lecture 4b