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Assignment 1 Submission

Himakar Gadham & Atikant Jain

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Assignment 1 submitted by Himakar Gadham - 23783777, Atikant Jain - 24051868

Both of us contributed equally to all the questions. We both sat together in library and worked through all questions and both did final touches.

Question 1 Normal distribution. (8 marks)

(a) (1 mark) Find the probability that the user spends more than 15 minutes per month at the site.

```
mean <- 25
std_dev <- 4.0
prob_more_than_15 <- 1 - pnorm(15, mean, std_dev)
cat("Probability that the user spends more than 15 minutes per month:", round(prob_more_than_15, 4))
```

Probability that the user spends more than 15 minutes per month: 0.9938

(b) (2 marks) Find the probability that the user spends between 20 and 35 minutes per month at the site.

```
prob_between_20_and_35 <- pnorm(35, mean, std_dev) - pnorm(20, mean, std_dev)
cat("Probability that the user spends between 20 and 35 minutes per month:",
    round(prob_between_20_and_35, 4))
```

Probability that the user spends between 20 and 35 minutes per month: 0.8881

(c) (2 marks) What is the amount of time per month a user spends on Facebook, if only 1% of users spend this time or longer on Facebook?

```
time_for_1_percent <- qnorm(0.99, mean, std_dev)
cat("Time per month a user spends on Facebook if only 1% of users spend this time or longer:",
    round(time_for_1_percent, 4), "minutes")
```

Time per month a user spends on Facebook if only 1% of users spend this time or longer: 34.3054 minutes

(d) (3 marks) Between what values do the time spent of the middle 90% distribution of Facebook users fall?