Lab 07

IT24103580

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```
setwd('C:\\Users\\ASUS\\Desktop\\IT24103580')
getwd()

min_total <- 40
a <- 10
b <- 25
p1 <- (b - a) / min_total
cat(sprintf("1) P(train arrives between 8:10 and 8:25) = %g (=%0.4f)\n", p1, p1))

lambda <- 1/3
t <- 2 # hours
p2 <- 1 - exp(-lambda * t)
cat(sprintf("2) P(update takes at most 2 hours) = %g (=%0.6f)\n", p2, p2))

mu <- 100
sigma <- 15
p3i <- 1 - pnorm(130, mean = mu, sd = sigma)
cat(sprintf("3(i) P(IQ > 130) = %g (=%0.6f)\n", p3i, p3i))

q95 <- qnorm(0.95, mean = mu, sd = sigma)
cat(sprintf("3(ii) 95th percentile IQ score = %g (=%0.3f)\n", q95, q95))
```

```
> min_total <- 40
> a <- 10
> b <- 25
> p1 <- (b - a) / min_total
> cat(sprintf("1) P(train arrives between 8:10 and 8:25) = %g (=%0.4f)\n", p1, p1))
1) P(train arrives between 8:10 and 8:25) = 0.375 (=0.3750)
```

```
> lambda <- 1/3
> t <- 2 # hours
> p2 <- 1 - exp(-lambda * t)
> cat(sprintf("2) P(update takes at most 2 hours) = %g (=%0.6f)\n", p2, p2))
2) P(update takes at most 2 hours) = 0.486583 (=0.486583)
```

```
> mu <- 100
> sigma <- 15
> p3i <- 1 - pnorm(130, mean = mu, sd = sigma)
> cat(sprintf("3(i) P(IQ > 130) = %g (=%0.6f)\n", p3i, p3i))
3(i) P(IQ > 130) = 0.0227501 (=0.022750)
```

```
> q95 <- qnorm(0.95, mean = mu, sd = sigma)
> cat(sprintf("3(ii) 95th percentile IQ score = %g (=%0.3f)\n", q95, q95))
3(ii) 95th percentile IQ score = 124.673 (=124.673)
```