

LAMPIRAN I

PERHITUNGAN UNTUK 7 FASILITAS PELAYANAN.

$$P = \frac{\lambda}{s\lambda} = \frac{6,4940}{7 \times 1,2380} = \frac{6,4940}{8,666} = 0,75$$

$$P_0 = 1 - \frac{\lambda}{s\mu} = 1 - \frac{6,4940}{7 \times 1,2380} = 1 - 0,75 = 0,25$$

$$P_n = \left(1 - \frac{\lambda}{s\mu}\right) \left(\frac{\lambda}{s\mu}\right)^n = \left(1 - \frac{6,4940}{7 \times 1,2380}\right) \left(\frac{6,4940}{7 \times 1,2380}\right)^1 = (1 - 0,75) \times 0,75 = 0,25 \times 0,75 = 0,19$$

$$L_s = \frac{\lambda / s\mu}{1 - \lambda / s\mu} = \frac{0,75}{1 - 0,75} = \frac{0,75}{0,25} = 3,0$$

$$L_q = L_s - \frac{\lambda}{s\mu} = 3,0 - \frac{6,4940}{7 \times 1,2380} = 3,0 - 0,75 = 2,25$$

$$\begin{aligned}
 W_q &= \frac{L_q}{s \mu} \\
 &= \frac{2,25}{7 \times 1,2380} \\
 &= \frac{2,25}{8,666} = 0,259 = 15 \text{ menit } 32 \text{ detik}
 \end{aligned}$$

$$\begin{aligned}
 W_s &= \frac{L_s}{s \mu} \\
 &= \frac{3,0}{8,666} = 0,346 = 20 \text{ menit } 46 \text{ detik}
 \end{aligned}$$

PERHITUNGAN UNTUK 8 FASILITAS PELAYANAN.

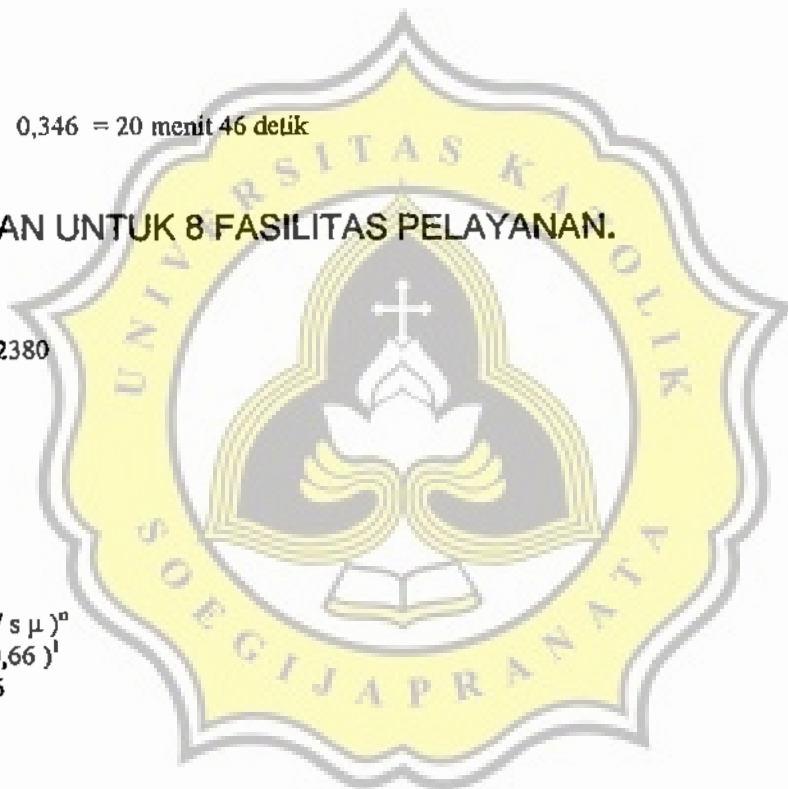
$$\begin{aligned}
 P &= \lambda / s \mu \\
 &= 6,4940 / 8 \times 1,2380 \\
 &= 6,4940 / 9,904 \\
 &= 0,66
 \end{aligned}$$

$$\begin{aligned}
 P_0 &= 1 - \lambda / s \mu \\
 &= 1 - 0,66 \\
 &= 0,34
 \end{aligned}$$

$$\begin{aligned}
 P_n &= (\lambda / s \mu) (\lambda / s \mu)^n \\
 &= (1 - 0,66) (0,66)^1 \\
 &= 0,34 \cdot 0,66 \\
 &= 0,22
 \end{aligned}$$

$$\begin{aligned}
 L_s &= \frac{\lambda / s \mu}{1 - \lambda / s \mu} \\
 &= \frac{0,66}{0,34} = 1,94
 \end{aligned}$$

$$\begin{aligned}
 L_q &= L_s - \lambda / s \mu \\
 &= 1,94 - 0,66 \\
 &= 1,28
 \end{aligned}$$



$$W_q = \frac{L_q}{s\mu} = \frac{1,28}{9,904} = 0,129 = 7 \text{ menit } 45 \text{ detik}$$

$$W_s = \frac{L_s}{s\mu} = \frac{1,94}{9,904} = 0,196 = 11 \text{ menit } 45 \text{ detik}$$

PERHITUNGAN UNTUK 9 FASILITAS PELAYANAN.

$$P = \lambda / s\mu = 6,4940 / 9 \times 1,2380 = 6,4940 / 11,142 = 0,58$$

$$P_0 = 1 - \lambda / s\mu = 1 - 0,58 = 0,42$$

$$P_n = (1 - \lambda / s\mu) (\lambda / s\mu)^n = (1 - 0,58) (0,58)^1 = 0,24$$

$$L_s = \frac{\lambda / s\mu}{1 - \lambda / s\mu} = \frac{0,58}{0,42} = 1,38$$

$$L_q = L_s - \lambda / s\mu = 1,38 - 0,58 = 0,80$$

$$W_q = \frac{L_q}{s\mu} = \frac{0,80}{11,142} = 0,071 = 4 \text{ menit } 20 \text{ detik}$$



$$\begin{aligned}
 W_s &= \frac{L_s}{s\mu} \\
 &= \frac{11,142}{12,38} \\
 &= 0,900 = 7 \text{ menit } 26 \text{ detik}
 \end{aligned}$$

PERHITUNGAN UNTUK 10 FASILITAS PELAYANAN

$$\begin{aligned}
 P &= \lambda / s\mu \\
 &= 6,4940 / 10 \times 1,2380 \\
 &= 6,4940 / 12,38 \\
 &= 0,52
 \end{aligned}$$

$$\begin{aligned}
 P_0 &= 1 - \lambda / s\mu \\
 &= 1 - 0,52 \\
 &= 0,48
 \end{aligned}$$

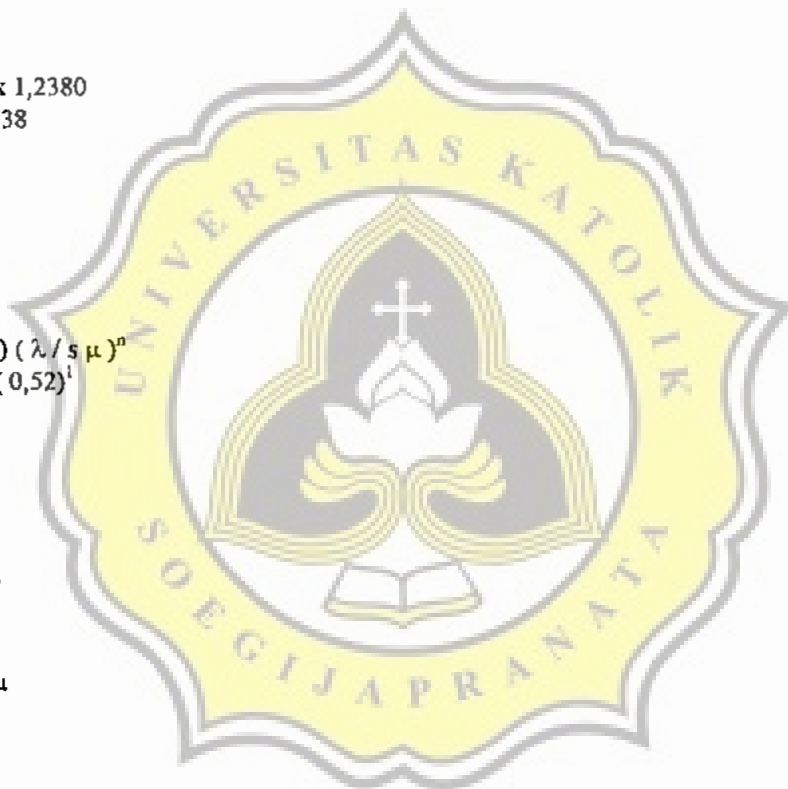
$$\begin{aligned}
 P_n &= (1 - \lambda / s\mu) (\lambda / s\mu)^n \\
 &= (1 - 0,52) (0,52)^1 \\
 &= 0,25
 \end{aligned}$$

$$\begin{aligned}
 L_s &= \frac{\lambda / s\mu}{1 - \lambda / s\mu} \\
 &= \frac{0,52}{0,48} \\
 &= 1,08
 \end{aligned}$$

$$\begin{aligned}
 L_q &= L_s - \lambda / s\mu \\
 &= 1,08 - 0,52 \\
 &= 0,56
 \end{aligned}$$

$$\begin{aligned}
 W_q &= \frac{L_q}{s\mu} \\
 &= \frac{0,56}{12,38} = 0,045 = 2 \text{ menit } 43 \text{ detik}
 \end{aligned}$$

$$\begin{aligned}
 W_s &= \frac{L_s}{s\mu} \\
 &= \frac{1,08}{12,38} = 0,087 = 5 \text{ menit } 15 \text{ detik}
 \end{aligned}$$



PERHITUNGAN UNTUK 11 FASILITAS PELAYANAN

$$\begin{aligned} P &= \lambda / s \mu \\ &= 6,4940 / 11 \times 1,2380 \\ &= 6,4940 / 13,618 \\ &= 0,48 \end{aligned}$$

$$\begin{aligned} P_0 &= 1 - \lambda / s \mu \\ &= 1 - 0,48 \\ &= 0,52 \end{aligned}$$

$$\begin{aligned} P_n &= (1 - \lambda / s \mu) (\lambda / s \mu)^n \\ &= (1 - 0,48) (0,48)^1 \\ &= 0,24 \end{aligned}$$

$$\begin{aligned} L_s &= \frac{\lambda / s \mu}{1 - \lambda / s \mu} \\ &= 0,48 / 0,52 \\ &= 0,92 \end{aligned}$$

$$\begin{aligned} L_q &= L_s - \lambda / s \mu \\ &= 0,92 - 0,48 \\ &= 0,44 \end{aligned}$$

$$\begin{aligned} W_q &= \frac{L_q}{s \mu} \\ &= \frac{0,44}{13,618} = 0,032 = 1 \text{ menit } 56 \text{ detik} \end{aligned}$$

$$\begin{aligned} W_s &= \frac{L_s}{s \mu} \\ &= \frac{0,92}{13,618} = 0,067 = 4 \text{ menit } 3 \text{ detik} \end{aligned}$$



PERHITUNGAN UNTUK 12 FASILITAS PELAYANAN

$$\begin{aligned} P &= \lambda / s \mu \\ &= 6,4940 / 12 \times 1,2380 \\ &= 6,4940 / 14,856 \\ &= 0,44 \end{aligned}$$

$$\begin{aligned}
 P_0 &= 1 - \lambda / s \mu \\
 &= 1 - 0,44 \\
 &= 0,56
 \end{aligned}$$

$$\begin{aligned}
 P_n &= (1 - \lambda / s \mu) (\lambda / s \mu)^n \\
 &= (1 - 0,44) (0,44)^1 \\
 &= 0,25
 \end{aligned}$$

$$\begin{aligned}
 L_s &= \frac{\lambda / s \mu}{1 - \lambda / s \mu} \\
 &= 0,44 / 0,56 \\
 &= 0,79
 \end{aligned}$$

$$\begin{aligned}
 L_q &= L_s - \lambda / s \mu \\
 &= 0,79 - 0,44 \\
 &= 0,35
 \end{aligned}$$

$$\begin{aligned}
 W_q &= \frac{L_q}{s \mu} \\
 &= \frac{0,35}{14,856} \\
 &= 0,023 = 1 \text{ menit } 25 \text{ detik}
 \end{aligned}$$

$$\begin{aligned}
 W_s &= \frac{L_s}{s \mu} \\
 &= \frac{0,79}{14,856} \\
 &= 0,0531 = 3 \text{ menit } = 12 \text{ detik}
 \end{aligned}$$



LAMPIRAN II

Perhitungan untuk biaya total, biaya fasilitas pelayanan dan biaya menunggu. Di mana besarnya biaya menunggu sepeda motor per jam (c_2) adalah Rp. 7.500,- dan besarnya biaya fasilitas pelayanan per jam (c_1) adalah Rp. 1.382,2751,-.

Biaya total = biaya fasilitas pelayanan + biaya menunggu

$$C_t = c \cdot c_1 + L_s \cdot c_2$$

PERHITUNGAN UNTUK C = 6

$$\begin{aligned} C_t &= c \cdot c_1 + L_s \cdot c_2 \\ &= 6 \times 1.382,2751 + 6,9495 \times 7.500 \\ &= 8.293,65 + 52.121,25 \\ &= 60.414,9 \end{aligned}$$

PERHITUNGAN UNTUK C = 7

$$\begin{aligned} C_t &= c \cdot c_1 + L_s \cdot c_2 \\ &= 7 \times 1.382,2751 + 3,0 \times 7.500 \\ &= 9.675,9 + 22.500 \\ &= 32.175,9 \end{aligned}$$

PERHITUNGAN UNTUK C = 8

$$\begin{aligned} C_t &= c \cdot c_1 + L_s \cdot c_2 \\ &= 8 \times 1.382,2751 + 1,94 \times 7.500 \\ &= 11.058,2 + 14.550 \\ &= 25.608,2 \end{aligned}$$

PERHITUNGAN UNTUK C = 9

$$\begin{aligned}C_t &= c \cdot c_1 + Ls \cdot c_2 \\ &= 9 \times 1.382,2751 + 1,38 \times 7.500 \\ &= 12.440,48 + 10.350 \\ &= 22.790,48\end{aligned}$$

PERHITUNGAN UNTUK C = 10

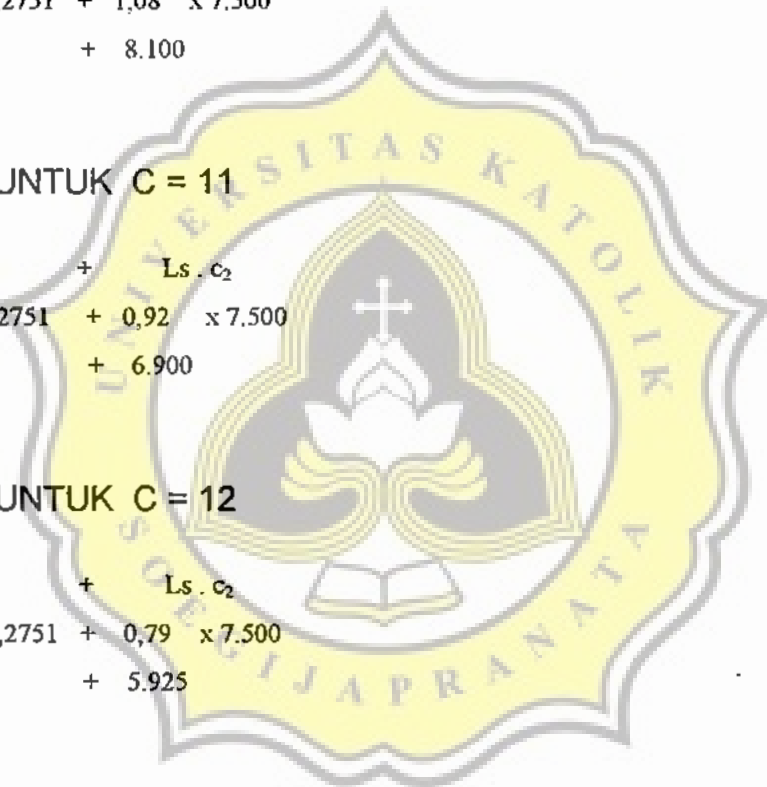
$$\begin{aligned}C_t &= c \cdot c_1 + Ls \cdot c_2 \\ &= 10 \times 1.382,2751 + 1,08 \times 7.500 \\ &= 13.822,7 + 8.100 \\ &= 21.922,7\end{aligned}$$

PERHITUNGAN UNTUK C = 11

$$\begin{aligned}C_t &= c \cdot c_1 + Ls \cdot c_2 \\ &= 11 \times 1.382,2751 + 0,92 \times 7.500 \\ &= 15.205,02 + 6.900 \\ &= 22.105,02\end{aligned}$$

PERHITUNGAN UNTUK C = 12

$$\begin{aligned}C_t &= c \cdot c_1 + Ls \cdot c_2 \\ &= 12 \times 1.382,2751 + 0,79 \times 7.500 \\ &= 16.587,30 + 5.925 \\ &= 22.512,30\end{aligned}$$






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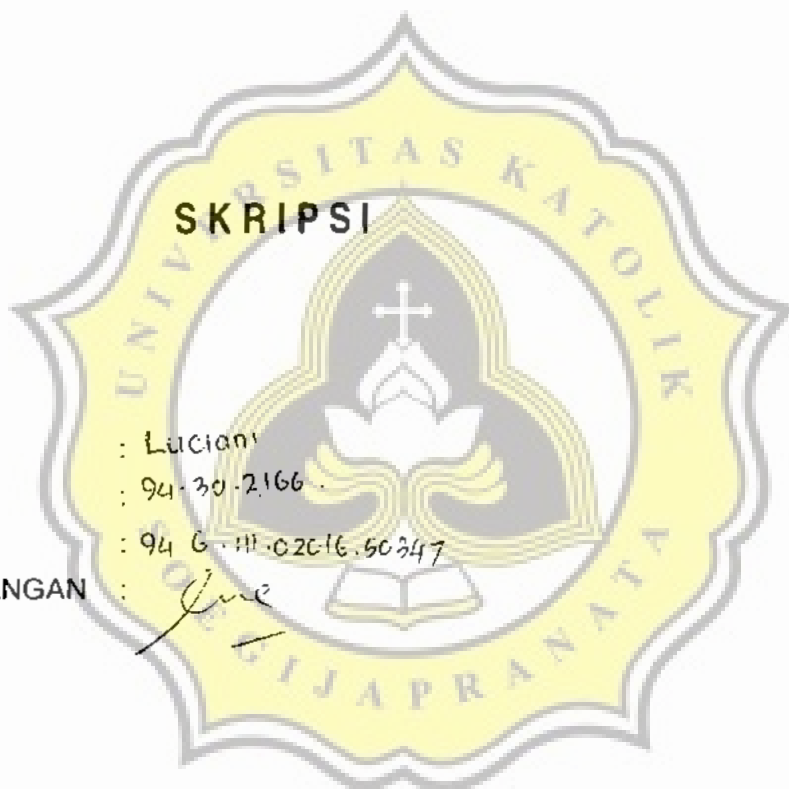
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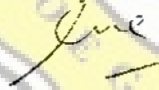


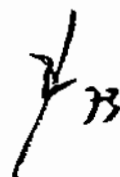
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SURAT KETERANGAN

Yang bertanda tangan dibawah ini menerangkan bahwa mahasiswa dari Universitas Khatolik Soegijapranata Semarang:

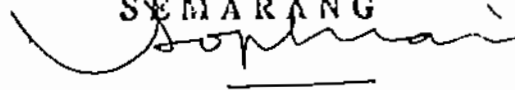
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telah selesai mengadakan penelitian di PT Nusantara Sakti untuk penyusunan skripsi dengan judul "Optimalisasi Sistem Antrian Pelayanan Servis pada PT Nusantara Sakti".

Demikian surat keterangan ini dibuat dengan sebenarnya, untuk dipergunakan sebagaimana mestinya.

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