**Title**: Lab 4  
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**Course & Section**: CSC 109-103W

**Description**: This program will calculate and display how long a car has been parked in minutes and hours, including the parking fees where the charges are $1.00 per hour and $1.00 for a partial hour.

**Initial Algorithm**

Get number of minutes parked

Calculate number of hours and minutes

Calculate the parking fee

Display the parking fee, formatted as a currency

**Data Requirements**:

(integer) totalMinutes – This is the total number of minutes parked

(integer) hoursParked – This is the number of hours parked

(integer) minutesParked – This is the number of minutes parked left over

(double) PARKING\_RATE – This is the regular hourly cost to park

(double) parkingFee – This is the total cost of the parking fee

(NumberFormat) currency\_format – This object holds the currency format

**Formulas**:

PARKING\_RATE = 1.0

hoursParked = totalMinutes / 60

minutesParked = totalMinutes % 60

parkingFee = (minutesParked == 0)  
? hoursParked \* PARKING\_RATE  
: hoursParked \* PARKING\_RATE + PARKING\_RATE

**Refined Algorithm**

Get the total number of minutes parked (totalMinutes?)

IF total minutes parked is 0 THEN

Display error message regarding invalid parking time

ELSE

Calculate number of hours parked (hoursParked)

hoursParked = totalMinutes / 60

Calculate remaining number of minutes parked (minutesParked)

minutesParked = totalMinutes % 60

Display number of hours and minutes parked

“Your car has been parked for x hours and x minutes.”

Calculate the parking fee (parkingFee)

parkingFee = hoursParked \* PARKING\_RATE

IF there are minutes remaining THEN

Add another hour’s fee, rounding up from partial hour

parkingFee += PARKING\_RATE

END IF

Display parking fee, formatted as a currency

“You owe $xx.xx in parking fees.”

END IF