Probability each customer will not pay their bill

I divided the problem in two part a classification model and logistic regression

First part: Classification

Given {

Credit score,
Income,
Debt,
Expenses,
Payment history score,
Rent or own,
Months without job,
Lives with life partner (spouse, friend with benefits, free union, etc; Yes/No)
How many of dependents,
How many people in household
How long lived there
Is selling the house?
}

Use {KNN}

To {Classify customers in pay, can pay but do not pay, not able to pay}

Second part: Logistic Regression

Given {

KNN classification results label,
Credit score,
Income,
Debt,
Expenses,
Payment history score,
Rent or own,
Months without job,
Lives with life partner (spouse, friend with benefits, free union, etc; Yes/No)
How many of dependents,
How many people in household
How long lived there
Is selling the house?
}

Use {logistic regression}

To {probability each customer will not pay their bill}

Amount of power use next month for each customer

If there are sufficient history I would test time series analysis vs clustering – regression. If there are not sufficient history I would choice clustering - regression

Time series approach

Given {

Time series of amount of power that customer use
}

Use { Holt winter}

To {Forecast amount power use next month}

Clustering – Regression approach

Part 1: Clustering

Given {

Zip code
Months without job
Lives with life partner (spouse, friend with benefits, free union, etc; Yes/No)
How many of dependent
How many people in household
Is selling the house?
Square feet's
How many rooms
How many TVs
Has an electric shower
Has an electric kitchen
Next month
Temperature forecast next month
}

Use {Clustering}

To {Cluster customers}

Part 2: Linear Regression

Given {

Clustering Label
Zip code
Months without job
Lives with life partner (spouse, friend with benefits, free union, etc; Yes/No)
How many of dependent
How many people in household
Is selling the house?
Square feet's
How many rooms

How many TVs
Has an electric shower
Has an electric kitchen
Next month
Temperature forecast next month
}

Use {linear regression}

To {Forecast amount power use next month}

Vehicle routing to max total value of shutoff and determine how many job company should create

I would use an optimization model for determine the number of employees and shutoff

Given {

score = probability each customer will not pay their bill * Forecast amount power use next month

total cost

Past data on travel time/speed

Other details of driving too long/expensive to collect

Time to shut off power

}

Use {optimization}

To {determine which number of employees and shutoff}