1.)

- I chose to use a GLM Poisson model.
- I used Poisson because of the non-normal data distribution.
- If used OLS model it would break some of the main assumptions of OLS

2.)

predictor	effect	rationale
Target (y)		
spend	y1	This is the target.
Predictors		
recency	??	I am not sure if these effects spending.
historysegment	+	Spending over a year will affect overall spending.
history	+	The amount spent will play a part in spending.
mens	??	Mostly matters for male campaigns.
womens	??	Mostly matters for male campaigns.
zipcode	+	Suburban may have more disposable income.
newcustomer	??	I don't think it matters if the customer is new or not.
channel	+	If the customer purchased from their phone they spend more money as it is harder to research other products.
campaign	??	Maybe for same-gender campaigns; it is hard to tell.
visit	+	
Excluded Variables		
conversion	--	If there was a conversion then they purchased goods.

3.)

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Dependent variable:

	spend		
	OLS	Poisson	
	(1)	(2)	(3)
recency	-0.050*** (0.017)	-0.051*** (0.001)	-0.051*** (0.001)
level_of_spendinglow	-2.373*** (0.425)	-1.169*** (0.016)	-1.416*** (0.017)
level_of_spendingmid	-1.979*** (0.437)	-0.824*** (0.017)	-0.994*** (0.017)
email_typetargeted	0.595*** (0.126)	0.647*** (0.010)	0.647*** (0.010)
newcustomer		-0.414*** (0.008)	
zipcodeSurburban		-0.180*** (0.011)	
zipcodeUrban		-0.118*** (0.011)	
Constant	3.188*** (0.427)	0.887*** (0.017)	1.432*** (0.021)
Observations	64,000	64,000	64,000
R2	0.001		
Adjusted R2	0.001		
Log Likelihood		-Inf.000	-Inf.000
Akaike Inf. Crit.		Inf.000	Inf.000
Residual Std. Error	15.028 (df = 63995)		
F Statistic	18.803*** (df = 4; 63995)		
Note:		*p<0.1; **p<0.05; ***p<0.01	

4.)

1.)How did the promotion campaigns work relative to the control group? Did the men's promotions work better than the women's promotion (or vice versa) and by how much?

-Males result in 46 extra dollars in spending per targeted email while females results in 50 extra dollars in spending per targeted email. In short, there is a $4 dollar difference between the two genders. I would suggest keeping running ads for both genders the economic difference is small.

2.)Should we target these promotions to new customers (who joined over the last 12 months) rather than to established customers, or vice versa?

-New customers spend about $40 less than recurring customers, but to have established customers you have to obtain them.

3.)Should we target these promotions to customers who have a higher (or lower) history of spending over the last year?

- The model shows we should target established customers that have not recently spent money on our products.

4.)Did the promotions work better for phone or web channel?

- I originally thought that people on the web would spend less than the phone. The model shows people on the web spend about $15 more dollars than phone purchases.

5.)Will the promotions work better if the men's promotion is targeted at customers who bought men's merchandise over the last year (compared to those who purchased women's merchandise), and if the women's promotion would work better if targeted at customers who bought women's merchandise over the last year?

- No we should target people who were our customers that haven't purchased within the last 12 months.

5.) Reflect on the quality of your analysis, and comment on things you can do to further improve this analysis. (1 point)

- I am honestly not sure how good the model is. What thing I would like to see is the products that the company is running ads for. I think the data would be more interesting if the was a gender-neutral product. A gender-neutral product would allow us to a deeper understanding of purchasing habits.