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Actuarial model's
Assignment - 1

Q1)

Ans 1) The steps to consider regarding development of project are:

i) Objective: That a 99.5% probability for a year that its assets should not exceed its liabilities

ii) It is a cash flow projection model
iii) mandatory - regulators capital change
iv) Check the model for its validity
v) Scenario based model
vi) The parameters that are included in the model are income, profit & loss, interest rate, purchase, sales statement etc.
vii) In order to gain more accurate & precis results, we could use stimulation language for our preferred results
viii) Since its a scenario based model, worst case scenarios should be tried
ix) Including experts in the field as well as the real world it can help us better the model.
x) Then we should run the programe along.

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xi) Then check for the worst case scenario (as mentioned in viii)) i.e. the probability of liability being much greater than 0.5%.

xii) Then making sure, our model is constructed in accordance with all the guidelines

xiii) last step being, to communicate the results that the model created is used to estimate company capital at its worst scenario. i.e. bankruptcy or hyperinflation.

Q2)

Ans 2) The factors that could cause this probability to be inaccurate would be

→ Interest / inflation model
→ Number of policies sold
→ Unit linked payments
→ Amount of premium recieved
→ Pricing method of the model
→ Number of claims incurred
→ Risk in Investment project
→ Uncredible data

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→ since it is a stochastic model, it requires numerous attempts to correct model with statistical theory

→ Data provided may contain numerous outliers i.e. this would cause the probability to increase

Q3)

Ans 3) That stages I would go through in identifying an appropriate model for forecasting future mortality

→ Develop a well defined set of ~~data~~ objectives which need to be met by the result of Data Analyst.
like here the objective would be constructing a model for a small country for forecasting future mortality.

→ Identify data items required for analysis. In this case jotting down how we can record death i.e death certificates. causes of death, mortality rates in the past.

→ collection of data from appropriate source; herein as it is government

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aided, the government will provide us with valid and reliable sources. eg: There past records.

→ ~~Processing and formatting data for Analysis. eg: inputting in spreadsheets as well as data models.~~

→ Define the parameters for the model and considering appropriate parameter values.

→ Refining the model initially by capturing essence of real world system.

→ refining the level of details.

Q4)

Ans4) The key items for the documentation of a model includes

→ Objectives of the modelling exercise
→ validity of model according to the purpose it is to fulfill.
→ valadation of the data used
→ then the validity of the assumptions.

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Q5)

Ans 5)

Advantages of this model would be:

i) It would prove to be a rough future estimator of the demand of the product, scummy bars

ii) It would also helps us in production and supplying the product, scummy bars in line with its demand.

iii) help in calculation of project appraisal by investors while investing in the project.

Disadvantages of this model could be

→ Incase, there is any case of technological advancements in the next two decades it would prove our assumptions wrong

→ As the entire model is based on population assumption, incase the population dynamics go haywire it would cause our assumptions to fail as well.

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Q6)

Ans 6) The various possible reasons that the model could have varied output could be

i) The assumptions used by both actuarial students might vary.

ii) The assumption made by the first actuarial student were not clear to the second therefore he made the necessary change.

iii) The new model might be appropriate a relevant due to ~~the~~ regulatory changes.

iv) There might not be proper communication ~~i.e~~ by the earlier actuarial student i.e no comments were made on the report for the other student to identify and take over.

v) The model might have varied if any economic policies of the country were changed

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Q7)

Ans 7) The approach used to develop this model is widely appropriate because for the objective of trying to draw the best estimate of the future and ~~probability of would~~ in developing the number ~~of~~ & size of schools in this new town in accordance with age distribution, fertility and mortality rates would be appropriate parameters to the model as well, it would give perfect estimation of the amount of population ~~of~~ that is projected to grow in the consecutive years. Other measures taken into consideration should be taken by the government in order to control the population (births) and adoptions rate in the town as it would ultimately result in increase of population in town and our model would prove to be false.