Actuarial Models Assignment

Assignment-1

1- The following will be steps that I would take in the development of the model with respect to situations listed in the question:-

A If suppose the model is for a life insurance product

(i) ~~Se~~ Setting and defining objectives in this case we should focus on strong underwriting and minimal claim amount so as ~~to~~ to keep the insurance company ~~is~~ in ~~going~~ running into losses.

(ii) Planing the modelling process which will help us to check if the data used is from ~~...~~ proper source and valid.

(iii) Collection of data being the next step where ~~it~~ focus is to collect unbiased mortality data

(iv) Next ~~..~~ step will be to ~~...~~ define the parameters used ~~and~~ showing the assumptions which are considered by making the model.

(v) The essence of the real world is tested in the next step i.e. to check whether proper inflation rates are taken into account while making the model.

(vi) Involving experts where seniors and ~~col~~ peers can also contribute and give feedback & Turing test being the best possible way to check if the model is apt.

2. Not every model is accurate each of the them has it owns ~~a~~ different outcome and different ~~b~~ way of thinking is used. There are certain factors which might affect the accuracy of the model. The factors are :-

(i) Stochastic data has a random input hence it may affect the accuracy.

(ii) Pandemic being an outlier event also affects the ~~a~~ model as it was unexpected and ~~had~~ still has an impact on the economy.

(iii) Changing inflation rates also results in inaccuracy of a model.

(iv) Sometimes the parameters used in the model are invalid and does not complies with the actual scenario.

3 For ~~the~~ forecasting the future mortality by a model certain ~~things~~ criterias are need to be checked for proper result. The stages for identifying an appropiate model are as follows :-

(i) First thing being the objectives need to set as to why the future mortality is forecasted.

(ii) The data ~~also~~ used for the model should be recieved by a proper source e.g. WHO, Government offices etc.

(iii) Assumptions used for the model should be stated before hand so as to not ~~got~~ get confused while studying the model.

(iv) Turing test should be conducted wherein industry experts ~~can~~ identify between a pre-existing ~~a~~ model and the new model made. It is very beneficial for a model to undergo a turing test. If the expert happens to say that the new model is the pre-existing one then it considered to be a very impressive model.

(v) The model ~~to~~ must be free of bugs and accurate but in case of bugs it must be debugged first.

(vi) The Result of the model must be easy to understand and communicate to peers and even a layman.

4. Simply creating a model is not completion of the work. A model is incomplete without a document or file which states the purpose, assumptions and results of the model while a dataset is input. There are several key items which are need to be mentioned in a document those are:-

(i) The objective must be clearly mentioned as to why is this model created, for what purpose.

(ii) The parameters taken into consideration while ~~&~~ making the model e.g. Inflation, medical inflation, death due to a certain cause, income, probability of an event etc.

(iii) The assumption made during the preparation of the model must be stated clearly.

(iv) Any special inputs or scenario which are taken in consideration.

(v) The ~~results~~ data sources should also be mentioned.

(vi) The last thing should be the output i.e. the ~~result~~ result of the ~~a~~ data modelling and processing in simple terms so ~~as~~ it is easy to understand and communicate to the Client.

5. The advantages of this strategy are:-

(i) The data used from the previous ~~years~~ years are from ~~accu~~ proper sources hence ~~are almost~~ it will give proper results and accuracy

(ii) It may be cheap as not much money is used for the above model.

The disadvantages of this strategy are:-

(i) Outside events like wars and pandemic may occur which might affect the sales of the scrummy bar.

(ii) There might be new competitors ~~to~~ in the market which need to be taken into consideration ~~which~~ while preparing the model.

6 It is not ~~neces~~ necessary that each and every actuary thinks and works likely. ~~Thro~~ The reasons for different results are:—

(i) Different assumptions taken by both the actuarial students.

(ii) ~~The~~ It might also happen that the previous person did not stated his assumptions in the documents which is why there is a difference.

(iii) The parameters used by the second person may not be of use to the model.

7 The mortality rates may differ as the rural area is converted into a town it might be developed and have better hospitals and medical services. There might be some-part of the population which will ~~avoid~~ travel back to another rural area and may not want to live ~~the~~ in a town. ~~The population might decide on their schools after receiving a proper source of income and~~ Income will also play an important role.

8. The factors which the company should take into consideration when developing the model are:—

i The model should be easy to communicate to peers and the results shoulds be easy to interpret and understand.

ii The company should study the medical bills attached by their employees to study their illness.

iii To improve the efficiency of their workers company can also give ~~no~~- bonus for not taking sick-leaves.

iv As the main aim of the company is not ~~to~~ to create a model it ~~should~~ should be cheap.