

School of Engineering and Applied Science (SEAS), Ahmedabad University

B.Tech (CSE Semester IV): Probability and Random Processes (MAT
202) Special Assignment Abstract Submission #2 Submission

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Group No.

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Abstract

The most prevalent and common type of dementia is Alzheimer's disease (AD). However, it is notable that the peoples who are suffering from AD don't have any specific drug to cure AD or slowdown it. AD disease of old age, We will find AD between age of 60-75. Even if We can't cure it but by the knowledge of on set of Alzheimer will help to patient to understand the issue. Molecular genetics has far-reaching implications for all aspects of health. if genetic test results are known by the individual there may be a tendency for all individual to avoid most disease without any risk.

Each cell carries an identical set of chromosomes at birth, unless some have been damaged. A gene is a sequence of base pairs at a fixed location on a given chromosome. The gene at a given locus might have several variants these are known as alleles. Differences between alleles are the result of mutations, namely alterations to a gene caused by (for example) errors in replication of the DNA. If the mutation occurs in an adult cell, it can only spread through cell division. If the mutation occurs in a gene carried by a sperm or egg cell, it can be passed to offspring. Each cell has two alleles of every gene, one inherited from each parent. They may be the same or different. Mutant genes will encode variants of the protein that the gene produces. The great range of genetic diseases arises from the range of effects of the protein products of different alleles. The ApoE gene has three common alleles - *e1*, *e3* and *e4*. possible genotypes (*e2/e2*, *e2/e3*, *e2/e4*, *e3/e3*, *e3/e4* and *e4/e4*). The ApoE *e4* allele increases the risk of AD. We use a continuous-time multiple state model (continuous time markov nikov model). We have decided to select Markov Models because as this disorder can be described as multi stage progression process.

References

[1] A Macdonald and D. Pritchard, A Mathematical Model of Alzheimer Disease and the Apoe Gene, ASTIN Bulletin: The Journal of the IAA.