



# Ahsanullah University of Science and Technology

## Department of Computer Science and Engineering (CSE)

### CSE4108: Artificial Intelligence Lab, Spring 2018

### Lab Group: B2 Assignment: 5 Topic: Genetic Algorithm

**Task 1.** You need to solve the problem of Assignment-4 again. Just this time, you need to apply genetic algorithm.

Follow this table.

Category	Selection Technique	Crossover Technique	Mutation Technique
Roll Number%3==0	Rank Selection	Davis's Order (OX1)	Swap
		Cycle	Scramble
Roll Number%3==1	Roulette Wheel	Partially Matched Crossover	Swap
		Cycle	Scramble
Roll Number%3==2	Random Selection	Partially Matched Crssover	Swap
		Davis's Order Crossover	Scramble

**Things to be taken care of** In a gene string, apply crossovers only for the numeric parts, not the alphabet ones. For the alphabet parts, just scramble/shuffle them. So, between two parents, you apply crossover for the 1-8 digits and shuffle the r's and q's to get new child. For mutation, apply the techniques for the whole string.

**ATTENTION** During last assignment, a lot of codes were found similar. It can be excusable as there were little amount of things to be implemented and for most of you it was new experience in python. But in this assignment, even if you cannot solve a problem, try to do it yourself till the last. Evaluation will not only be done solely on the output of the code- we will take into account how much effort you put yourself on the assignment. Try to implement every new function on your own. You can do this assignment in any language. **NO LATE SUBMISSION WILL BE ALLOWED FOR THIS ASSIGNMENT.**