Ques 9

A 'Feature selection' problem.

__step1__ generate data file.
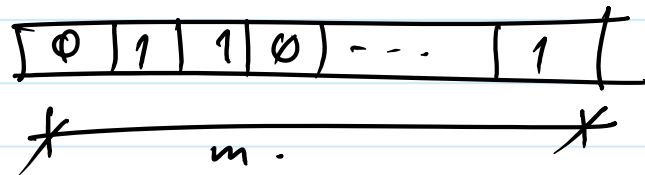
		tests				$Y^{+1/-1}$
patients	t_1	t_2	$\cdots$	t_m		
r_1	—	—		—	—	
r_2	—	—		—	—	
$\vdots$		$\vdots$			$\vdots$	
r_p	—	—	$\cdots$	—	$\vdots$	

__step2__ __Design of chromosome.__

array of length = m   bit
string.

bit $\emptyset$: test non-valid.
bit 1 : test valid.

$\emptyset$	1	1	$\emptyset$	$\cdots$	1

$$\underset{m.}{\longleftrightarrow}$$

__step3__ __Fitness__

Use NN and calculate error
with Cross Validation:
Leave-one-out LOO
$\Rightarrow$ fitness $= f_{av} = \dfrac{1}{e_{av}}$

__step 4__ __Selection__
Roulette wheel.

step5 Crossover

Normal bit-String Crossover.

step6 Mutation

Normal Flip-bit mutation
on bit-string Chromosome.

step7 Replacement

Elitist strategy.