Question 1:

Using Candidate-Elimination algorithm, find (manually) the set of all hypotheses consistent with the following training instances. Show step-by-step complete working of the algorithm. (create and upload the PDF file)

Origin	Manufacturer	Color	Decade	Type	Target
Japan	Honda	Blue	1980	Economy	+
Japan	Toyota	Green	1970	Sports	-
Japan	Toyota	Blue	1990	Economy	+
USA	Chryler	Red	1980	Economy	-
Japan	Honda	White	1980	Economy	+

S=<Ø, Ø, Ø, Ø, Ø>

G=<?,?,?,?,?>

Instance 1 : <Japan, Honda, Blue, 1980, Economy> +

S=< Japan, Honda, Blue, 1980, Economy >

G=<?,?,?,?,?>

Instance 2: <Japan, Toyota, Green, 1970, Sports> -

S=< Japan, Honda, Blue, 1980, Economy >

G={<?, Honda, ?,?,?>, <?, ?, Blue,?,?>, <?,?,?,1980,?>, <?,?,?,?,Economy>}

Instance 3: <Japan, Toyota, Blue, 1990, Economy> +

S=< Japan, ?, Blue, ?, Economy >

G={ <?, ?, Blue,?,?>, <?,?,?,?,Economy>}

Instance 4: <USA, Chryler , Red, 1980, Economy> -

S=< Japan, ?, Blue, ?, Economy >

G={< ?,?, Blue, ?,?>, <Japan,?,?,?, Economy> }

Instance 5: <Japan, Honda, White, 1980, Economy>+

S=< Japan, ?, ?, ?, Economy >

G={ < Japan, ?, ?, ?, Economy >}

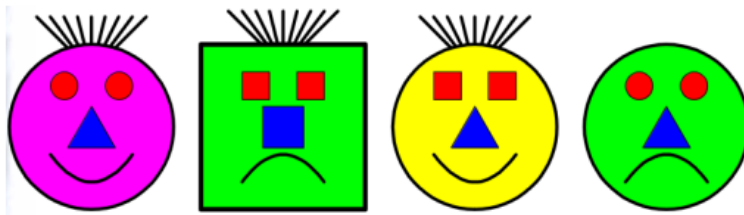Version Space={ < Japan, ?, ?, ?, Economy >}

Question 2:

Using Find-S algorithm, find (manually) a hypothesis that is consistent with the following dataset. Show step-by-step complete working of the algorithm. (create and upload the PDF file)

Train Test split for 80% for the training, and 20% for the testing

Training data

Color	Smily shape	Hairs	Eyes shape	Nose shape	Lips direction	Smiling
Purple	Circle	Yes	Circle	Triangle	Cup up	Yes
Green	Square	Yes	Square	Square	Cup down	No
Yellow	Circle	Yes	Square	Triangle	Cup up	Yes
Green	Circle	No	Circle	Triangle	Cup down	No

h=<Ø, Ø, Ø, Ø, Ø, Ø>

h1=<purple, Circle, Yes, Circle,Triangle, Cup up>

h2=<?, Circle, Yes, ?, Triangle, Cup up>

if color=? and Smily Shape=Circle and Hairs=Yes and Eyes Shape=? And Nose Shape= Triangle and Lips Direction=cup up

       Then

              Smiling=Yes otherwise smiling =no