

Assignment Unit-1.
The statement of double and
What is Fuzzy logic?
The tenm juzzy negers to thing that one not clear or one vague
not clear or are vague
Fuzzy logic is a form of many valued logic in which the truth values of variable may be any neal number between 011
Logic in which the truth values of variable
may be any neal number between 011
order of just videntimor values of raie
or false.
The jundamental of juzzy logic is the
membership junction which defines the
The fundamental of juzzy logic is the membership function which defines the degree of membership of an input value to a certain set of category.
to a centain set of category.

Ĭ	Francisco Mart - 1
	What is membership junction in jury
1	logic ?
1	It determines the degree to which
,	It determines the degree to which particular input belongs to a jury set
Ĭ	
1	A membership junction assign a value between 0 and 1 each input representing the degree of that input in a juzzy set.
4	between 0 and 1 each input nepre-
111	senting the degree of that input
	in a fuzzy set.
	Membership gunchion gor "Cold" temp gor temp below 10° C
-	temp below 10°C
	15 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	4) the membership degree for the temp.
	below 10°C =1 (completely Old).
	Below 10 C = 1 Completely ord

Que 3	Explain the concept of jurry set.
-	La sample in several house
	A Fuzzy set is a mathematical
17	concept that extands the Idea of
15.00	classical set by allowing elements to
	have degree of membership nother than
	just a simple Yes/No membership.
	This concept is used to chandle
	situations where boundaries are not
	clean and distribution
<u> </u>	Key Consepts: -
- 11	
1.	Membership junctions 3- Membership
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	sunchen determine
. \	the degree to which a particular
	input belongs to a juzzy set.
	This xunction made each element to
) 11 L.	This junction made each clement to a value 6/w 0 and 1
2.	Degree of truth: - Instead of just "True" or "False"
	"True" or "False"
A is	10274 logic unes dearee of truth
1	nanging from 0 to 1
1	
	The Art Annual Control of the Art Annual Control of the Art Art Art Annual Control of the Art Art Art Art Art Annual Control of the Art

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ric 4	Describe the note of membership
	aunchion in surry Pogic
1.5	
	A membership junction plays a
1,5	crucial rule in quantifying and
	nepresenting the degree of truth or
-	membership of an element within a
	[60721] Ser.
	Role of membership amobiose
	Role of membership sunction:-
i	Defining Fuzzy set: - Membership
	Junchian are
	used to define juzzy sets by asso- ciating each element of the eleme
* * * * * * * * * * * * * * * * * * * *	cialing each element of the eleme
	of the input space with a degree
	of membership. This allows surry set
	to capture the nau naunces of
	neal- World concept that are not
	easily categorized into binary true! false or Yes/No categories.
	Caregories.
11/2	Ouantifying Uncertainity: - Providing a
	orgalization organization
	transition 6/w membership and non- membership membership function
	membership membership runchion

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Data:	1	1	\mathcal{I}

1 12	quantify the uncertaintly and ambiguing
. 7 . 4	inherent in many near world
	osituations
iii	Fuzzification: - The process of suzzifi-
1, 1, 1	cation involves convention
)	cation involves convention coisp input into surzy values using membership sunction
2.66	membership sunction
לעל	Decision-making: - In decision making
	system, membenship
- 1	functions help to evalute and priori
	lize inputs by assigning degree of
	membership, they allow system to
	weight different factor according to
	their significance leading to more
- 11	nuanced and human-like decision
	making.
$-\parallel$	
1	
$-\parallel$	
	The state of the s
$\perp \parallel$	

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Jue 5.	Explain different types of operations on suzzy set?
	on juzzy sets operations on juzzy
	set?
	Union of suzzy set 3- The Union of how suzzy sets
	'A' and B' is a juzzy set C. Where
	the membership decree of on about
	in C in the maximum of its
is Ele	the membership degree of an element in C is the maximum of its membership degree in A and B
1	
	Mathematical expression for any element
	2
1 - 6 - 6	U C(x) or, el AUB(x) =
	max(uA(x), uB(x))
	max (u A(x), u B(x))
	U = {5,10,20,30}
	$A = \{(10, 0.2), (20, 0.4), (30, 0.9)\}$
	$B = \{10, 0.4\}, (20, 0.1), (30, 0.2)$
	LI AUB OF LIC(2) = \((10,0.4), (20,0.4), (30,0.9) \\ (30,0.9) \\ \)
	(30,0.9)

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	To tencection of mark
	Intensection of puzzy set:-
	T a 1 1:
	The intensection of two juzzy sets
	A and B is & fuzzy set C where
wil	the membership degree of an element
3 6	The intensection of two surry sets A and B is a surry set C where the membership degree of an element- in C is the min'm of it's member- ship degree in A and B.
	ship degree in A and B.
4.0	Marie Comment (100 mm) for the comment of the comme
	mathematics nepresentation: -
)	- Supromaning 3
	$U \subset (x) = min (U A(x), U B(x))$
	1 (K) - WIII (M 17(K) 3 (B(X))
12.1.5	1 / (10
	(10,0.2), (20,0.4), (30,0.9)
1 1 7	$A = \{(10, 0.2), (20, 0.4), (30, 0.9)\}$ $B = \{(10, 0.4), (20, 0.1), (30, 0.2)\}$
	C = ANB is
	Made of the State of the Manager of
	$u((x) = \{(10, 0.2), (20, 0.1), (30, 0.2)\}$
	Complement of fuzzy sets:-
Щ	(omprement 9 page 300).
	1 1 2
	The complement of a fuzzy set- 17 is
	"A" where the membership degree of
	The complement of a fuzzy sel-A is "A" where the membership degree of an element in "A" is 1 minus it's membership degree in A.
	membership degree in A.
	The state of the s

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	Mothematics expression:
5	for any element- χ . Let $A(\chi) = 1 - Le A(\chi)$
	$LIA(\mathcal{H}) = I - LIA(\mathcal{H})$
12 14	
	$A = \{(\chi, 0.3), (\chi_2, 0.7), (\chi_3, 0.5)\}$
	$A^{c} = \{(x_1, 0.7), (x_2, 0.3), (x_3, 0.5)\}$
-i	Scalar Muhiplication:
	It involves multipling the member-
	ship degree of a juzzy sets by scalar C typically C is a number 6/w 0 and 1.
	scalar C typically C is a number
	6/w 0 and 1.
	Mathematical Expression:
	For any element x
	11 32
	$UA^{c}(x) = C \cdot UA(x)$
	$U A^{c}(x) = C \cdot U A(x)$ where $0 \le C \le 1$
	ex-for a juzzy set A
	$A = \{(x, 0.4), (x_2, 0.8)\}$
- 11	

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7//	lef C = 0.5 then
	100
	$A = \{(x, 0.5, 0.4)\}$
	$M = (C \times 0.5 \times 0.4)$
5	Fuzzy Addition -
	Marie die anna traction de militaria
V	Fuzzy Addition is an operation where
11:5	the membership degree of an element
	in the nexiltant juzzy set is the
	sum of it's membership degrees in
	how suzzy sets clipped to maximu
	Fuzzy Addition is an operation where the membership degree of an element in the nexitant fuzzy set is the sum of its membership degrees in two fuzzy sets, clipped to maximus value of 1.
	The second secon
(Mathematics expression -
	For any element x
	TOT GILL EUTHENT
	U A+B (x) = min (MA(x) + MB (x)-1)
	14 17 13 (K) = MIN CM 17 CKJ + 1113 (XJ-1)
	16 6 6 7
	$A = \{(x_1, 0.2), (x_2, 0.6)\}$
	$B = \{(x, 0.5), (x_2, 0.3)\}$
	the Add C = A+B would be
	$C = \{x, min(0.2 + 0.5), 1\}$
	{ (x2, min (0.6 + 0.3), 1)}

	$= \{(x_1, 0.7), (x_2, (0.9))\}$
-	
6.	Fuzzy set subtraction -
	Turney set outline in the
	china the membership skares as
	Fuzzy set subtraction involves subtractions involves subtractions involves subtractions ching the membership degree of one suzzy set the mesult is clipped to a minimal
	the nesult is dipped to a minim
	value of 0.
	Mathematics expression -
	for any element of
	for any element x U A-B(x) = max (UA(x) - UB(x), 0)
	er-
	$B = \{(x, 0.7), (x_2, 0.5)\}$ $B = \{(x, 0.3), (x_2, 0.6)\}$
	$B = \{(\chi_{1}, 0.3), (\chi_{2}, 0.6)\}$
	$C = \{(x, max(0.7 - 0.3)0)$
	(x2, max (0.5-0.6),03
	$G = \{(x, 0.4), (x_2, 0)\}$