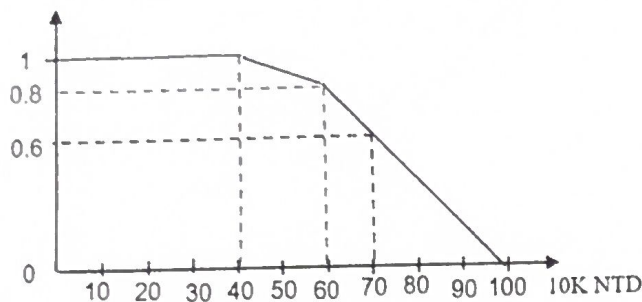


作業#12

- 假設某人找中古車的需求為「名車價低車齡新，後廂空間馬力大」，其模糊值設定如右：
- 今有五輛中古車要考慮，其事實定義及資料如後
- 某人對於這五個條件的重要性分別為1.0, 0.7, 0.8, 0.2, 0.5，請計算這五輛中古車符合需求的程度



```
(defrule match-price
  (declare (CF 0.7))
  (car (ID ?id) (price Low))
  =>
  (assert (low-price ?id)))
```

(declare (CF n)) 規則的CF確定程度n值可以作為滿足此條件的重要程度(權重值)，70萬產生車價低(low-price ?id)事實的CF值即為價格低(Low)的符合程度乘以此條件的權重值 $= 0.6 * 0.7 = 0.42$
 (get-cf ?f1) 可以取得 ?f1 事實的CF值
 五個條件的權重加總為 $1 + 0.7 + 0.8 + 0.2 + 0.5 = 3.2$ ，取加權平均值($/3.2$)作為中古車的符合程度(Degree)

```
FuzzyCLIPS> (run)
Car: 5 Degree: 0.5912605363984674
Car: 4 Degree:
Car: 3 Degree:
Car: 2 Degree:
```

?

```
(deftemplate Level
  1 7
  (
    (High (3 0) (5 0.9) (6 1))
  )
)

(deftemplate Price
  0 2000 ten-thousand-NTD
  (
    (Low (40 1) (60 0.8) (100 0))
  )
)

(deftemplate Years
  0 40 years
  (
    (Few (3 1) (5 0.9) (10 0))
  )
)

(deftemplate Capacity
  0 2000 liter
  (
    (Large (300 0) (600 1))
  )
)

(deftemplate Horsepower
  0 500 HP
  (
    (High (120 0) (180 0.8) (200 1))
  )
)
```

```
(deftemplate car
  (slot ID)
  (slot brand)
  (slot model)
  (slot price (type FUZZY-VALUE Price))
  (slot car-age (type FUZZY-VALUE Years))
  (slot trunk (type FUZZY-VALUE Capacity))
  (slot horsepower (type FUZZY-VALUE Horsepower))
)
```

```
(deftemplate car-brand
  (slot brand)
  (slot level (type FUZZY-VALUE Level))
)
```

「名車價低車齡新，後廂空間馬力大」

```
(deffacts initial
```

事實資料的CF值皆為預設值1.0(因為皆為確定的中古車資訊)

```
(car (ID 1) (brand Porsche) (model 718) (price (122 0) (122 1) (122 0)) (car-age (9 0) (9 1) (9 0))
  (trunk (150 0) (150 1) (150 0)) (horsepower (300 0) (300 1) (300 0)))
(car (ID 2) (brand BMW) (model 320i) (price (87 0) (87 1) (87 0)) (car-age (8 0) (8 1) (8 0))
  (trunk (480 0) (480 1) (480 0)) (horsepower (184 0) (184 1) (184 0)))
(car (ID 3) (brand Lexus) (model is200) (price (91 0) (91 1) (91 0)) (car-age (5 0) (5 1) (5 0))
  (trunk (450 0) (450 1) (450 0)) (horsepower (181 0) (181 1) (181 0)))
(car (ID 4) (brand Toyota) (model rav4) (price (79 0) (79 1) (79 0)) (car-age (4 0) (4 1) (4 0))
  (trunk (733 0) (733 1) (733 0)) (horsepower (173 0) (173 1) (173 0)))
(car (ID 5) (brand Hyundai) (model Elantra) (price (48 0) (48 1) (48 0)) (car-age (3 0) (3 1) (3 0))
  (trunk (458 0) (458 1) (458 0)) (horsepower (128 0) (128 1) (128 0)))
(car-brand (brand Ferrari) (level (7 0) (7 1) (7 0)))
(car-brand (brand Porsche) (level (5 0) (6 1) (7 0)))
(car-brand (brand BMW) (level (4 0) (5 1) (6 1) (7 0)))
(car-brand (brand Lexus) (level (4 0) (5 1) (6 0)))
(car-brand (brand Toyota) (level (3 0) (4 1) (5 0)))
(car-brand (brand Hyundai) (level (2 0) (3 1) (4 1) (5 0)))
(car-brand (brand Tata) (level (1 0) (1 1) (1 0)))
```

請到雲端學院下載初始事實資料
car.txt