

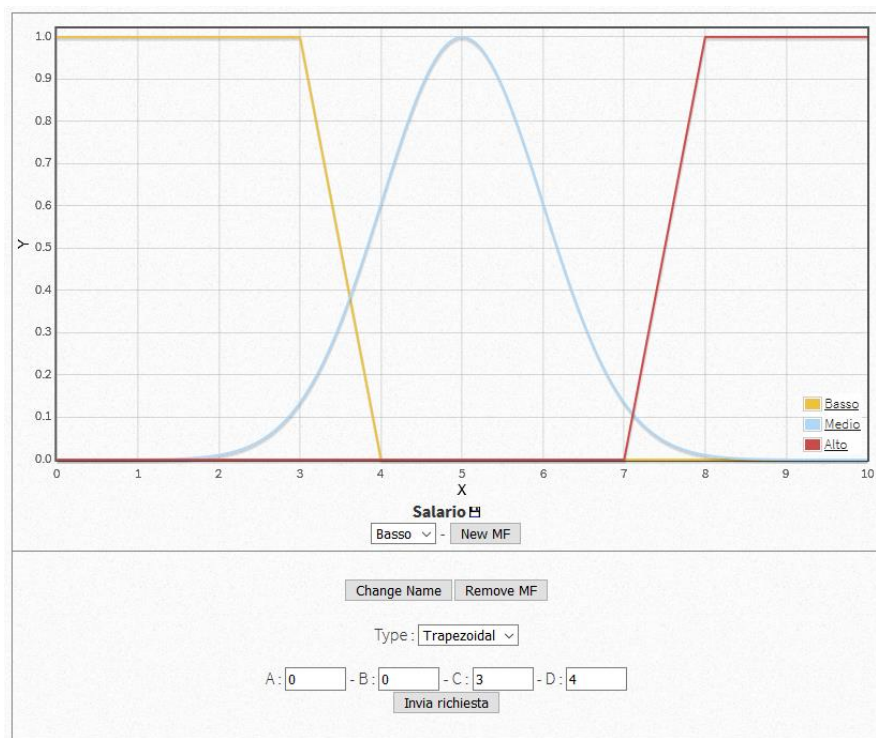
Studenti: Lorenzo Ardizzone (matr. 727152) e Francesco Belloni (matr. 725676)

GradoLavoro

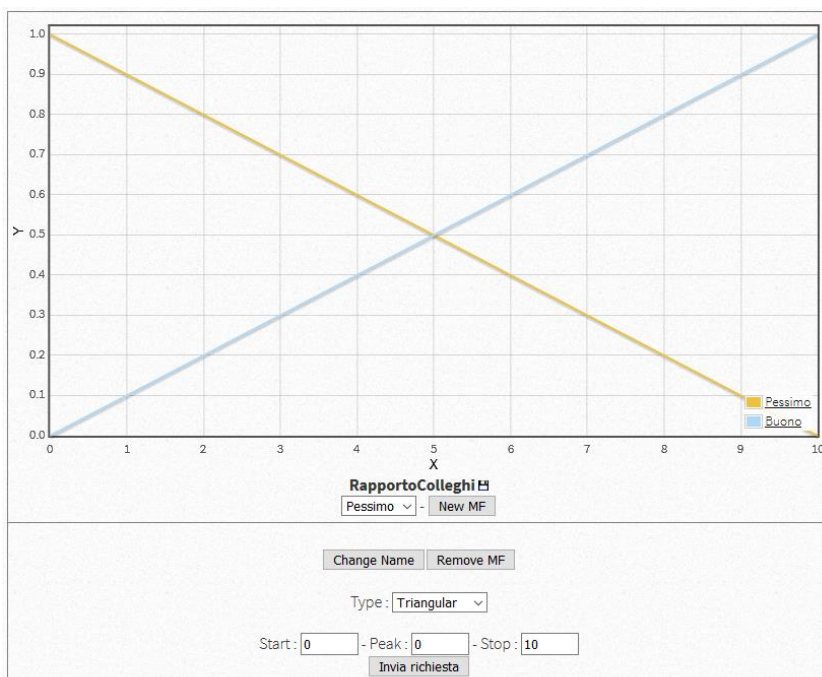
Il nostro esperimento riguarda l'utilizzo della logica fuzzy applicata al grado di soddisfazione del proprio lavoro.

Le membership functions utilizzate in Input sono le seguenti:

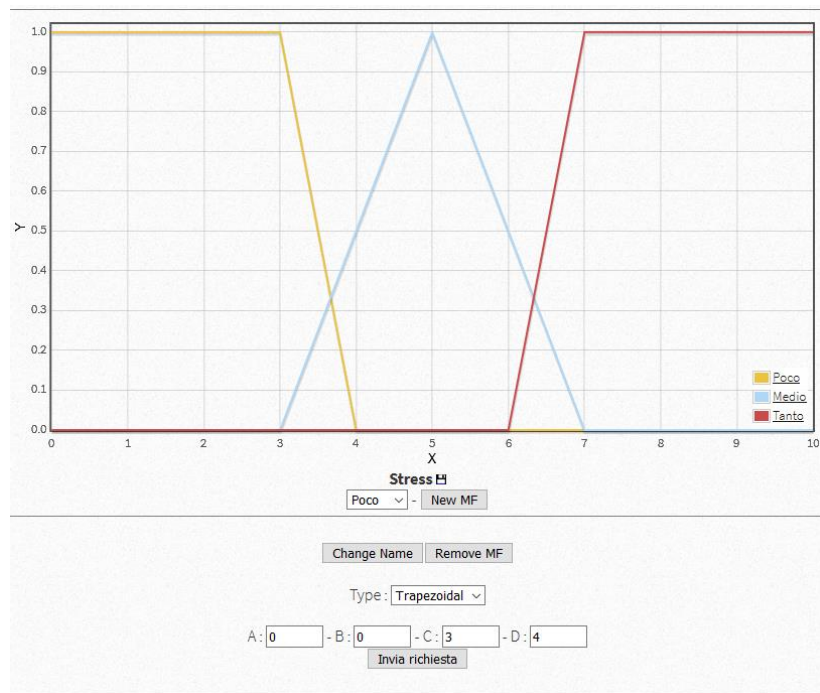
- Salario [0-10]



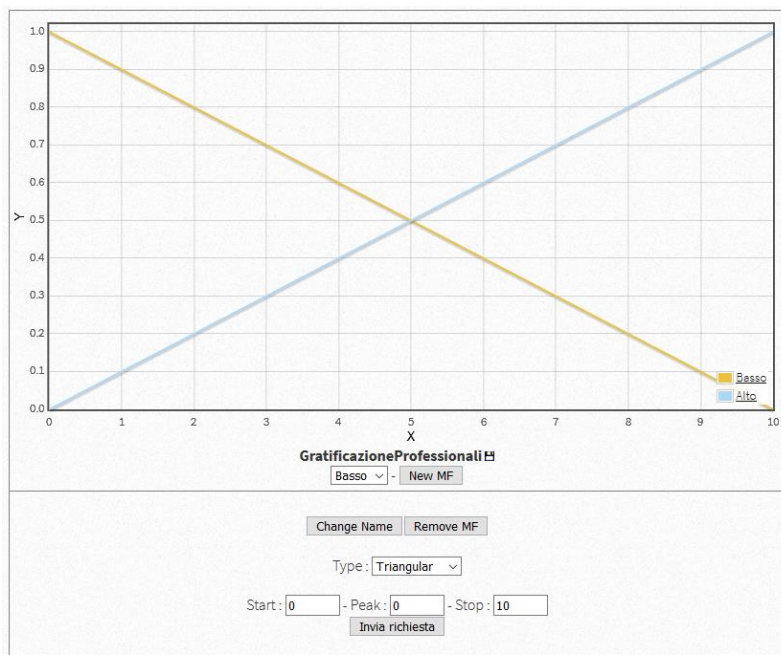
- Rapporto con i colleghi [0-10]



- Stess [0-10]

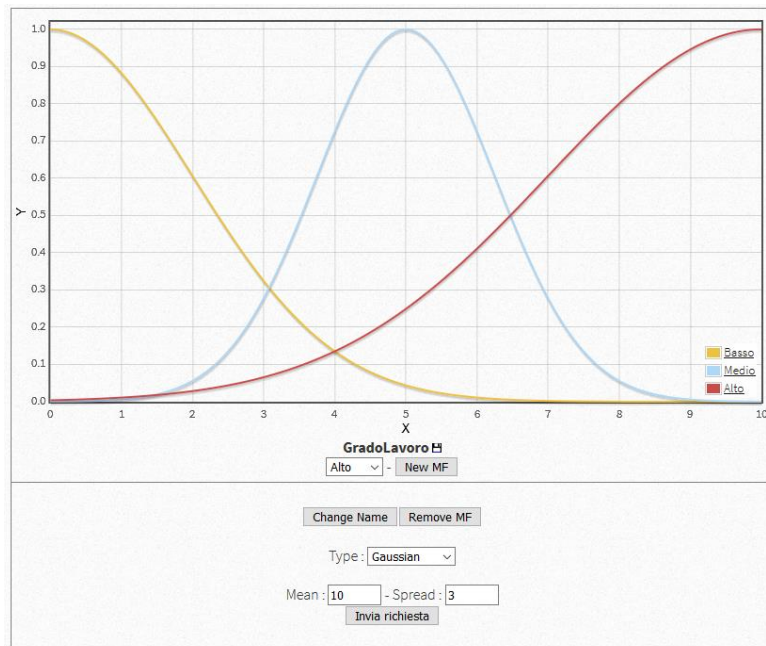


- Gratificazioni professionali [0-10]



La membership function utilizzata in Output è la seguente:

- GradoLavoro [0-10]



Abbiamo poi creato le seguenti regole:

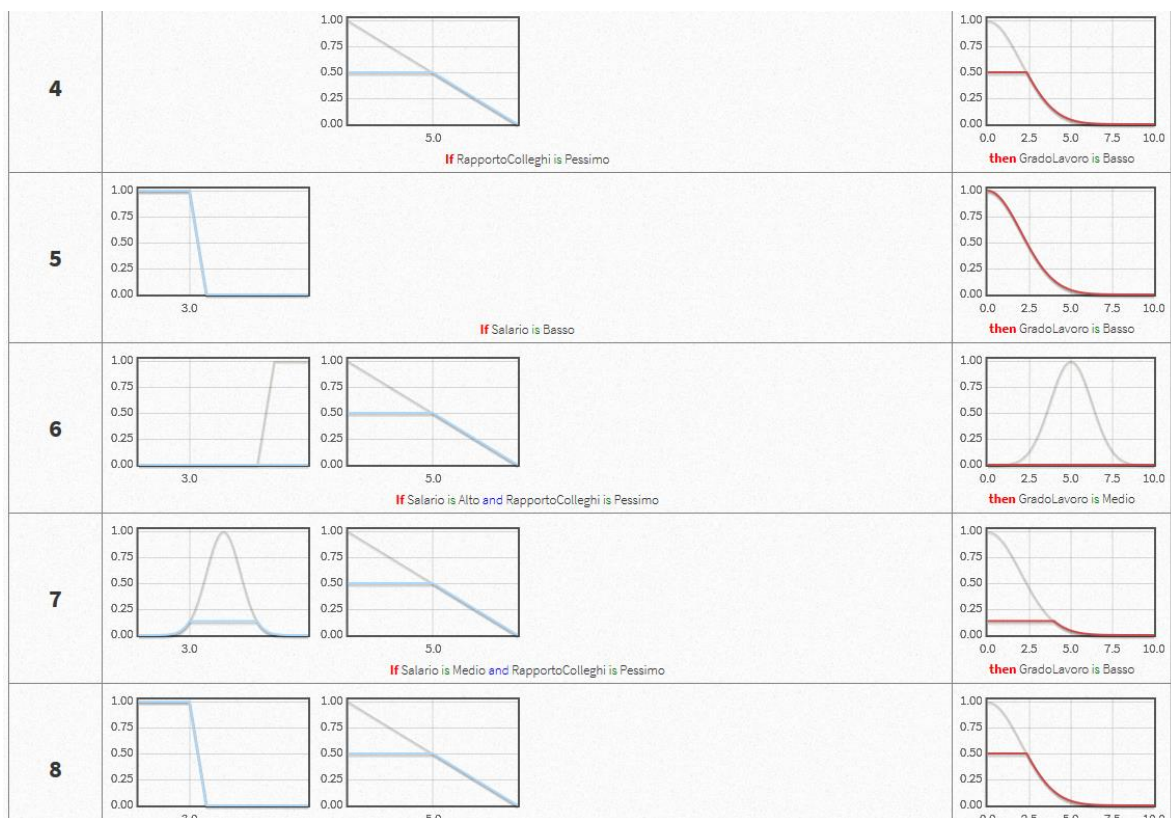
Rules
✂ 1. If Salario is Alto then GradoLavoro is Alto
✂ 2. If RapportoColleghi is Buono then GradoLavoro is Alto
✂ 3. If Stress is Tanto then GradoLavoro is Basso
✂ 4. If RapportoColleghi is Pessimo then GradoLavoro is Basso
✂ 5. If Salario is Basso then GradoLavoro is Basso
✂ 6. If Salario is Alto and RapportoColleghi is Pessimo then GradoLavoro is Medio
✂ 7. If Salario is Medio and RapportoColleghi is Pessimo then GradoLavoro is Basso
✂ 8. If Salario is Basso and RapportoColleghi is Pessimo then GradoLavoro is Basso
✂ 9. If Salario is Alto and RapportoColleghi is Pessimo and GratificazioneProfessionali is Alto then GradoLavoro is Alto
✂ 10. If Salario is Alto and RapportoColleghi is Pessimo and Stress is Tanto and GratificazioneProfessionali is Basso then GradoLavoro is Basso
✂ 11. If Salario is Medio and RapportoColleghi is Buono and Stress is Tanto and GratificazioneProfessionali is Alto then GradoLavoro is Alto
✂ 12. If Salario is Basso and RapportoColleghi is Pessimo and Stress is Tanto and GratificazioneProfessionali is Basso then GradoLavoro is Basso
✂ 13. If RapportoColleghi is Pessimo and Stress is Tanto then GradoLavoro is Basso
✂ 14. If RapportoColleghi is Buono and Stress is Tanto and GratificazioneProfessionali is Basso then GradoLavoro is Basso
✂ 15. If RapportoColleghi is Buono and Stress is Tanto and GratificazioneProfessionali is Alto then GradoLavoro is Medio
<input type="button" value="New Rule"/>

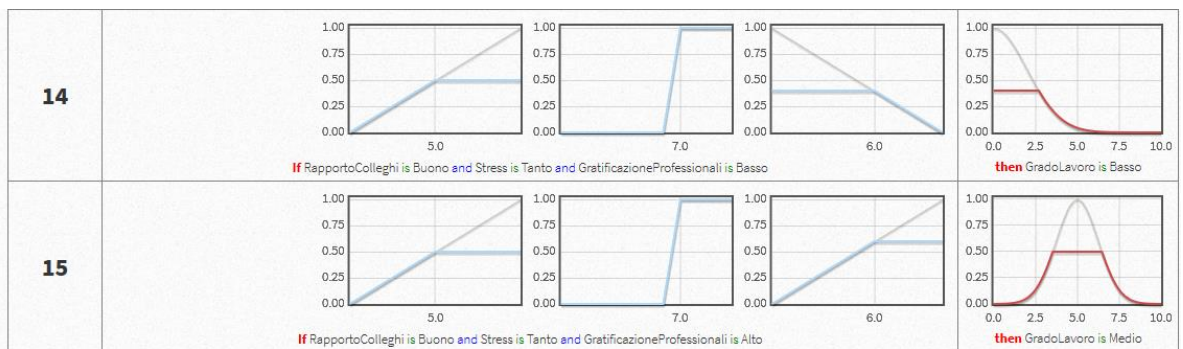
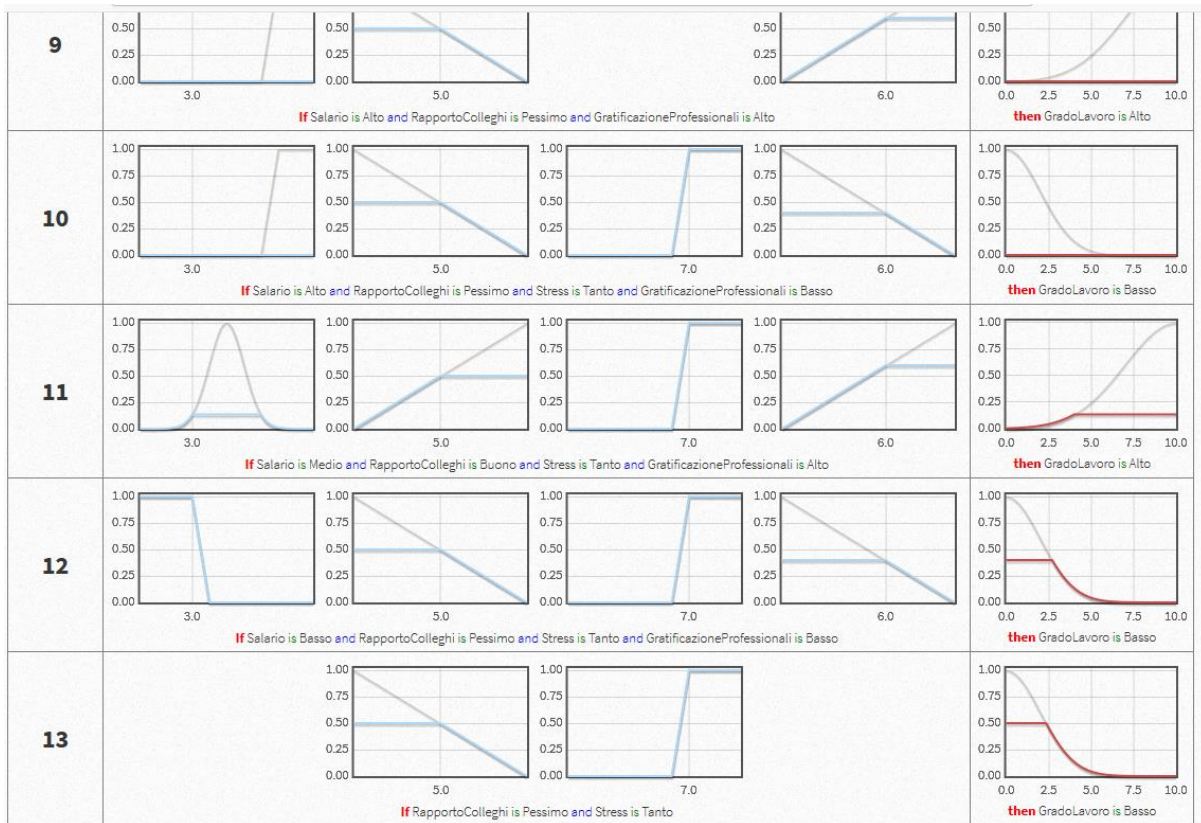
TEST 1

Nel primo esperimento abbiamo inserito i seguenti valori:

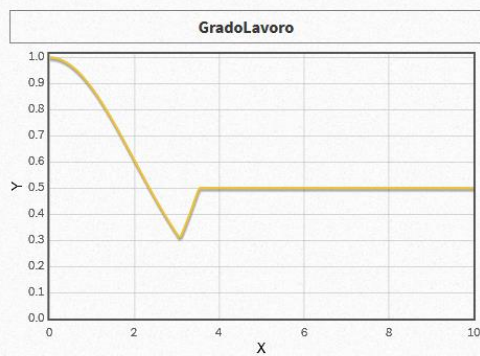
Salario = 3; RapportoColleghi = 5; Stress = 7; GratificazioneProfessionale = 6

Andiamo a vedere i risultati ottenuti:





Result :



Defuzzification method :
GradoLavoro : 4.485522197706134

Il Grado del lavoro con i dati del primo esperimento è circa **4.50**

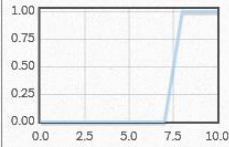
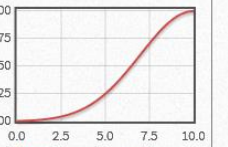
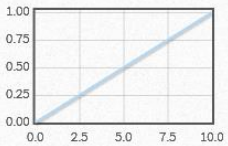
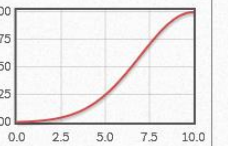
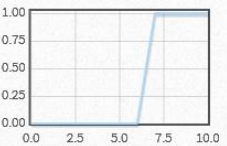
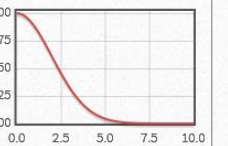
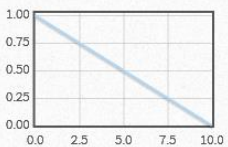
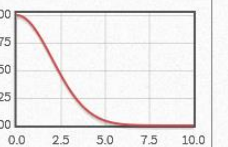
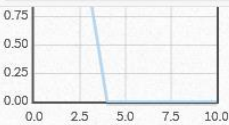
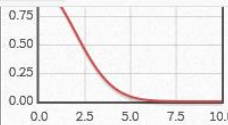

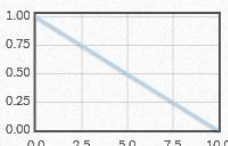
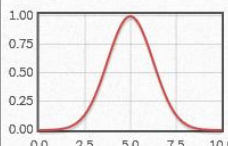
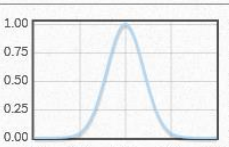
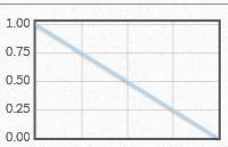
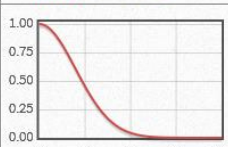
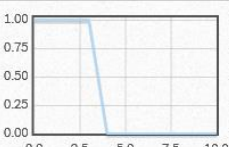

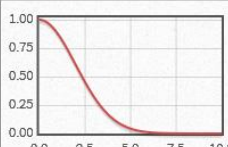
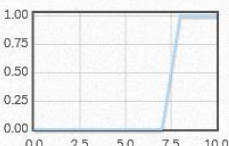
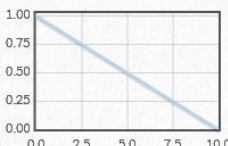
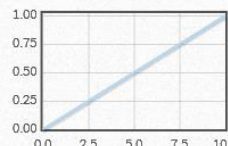
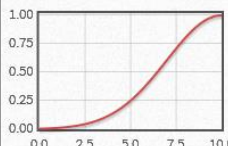
TEST 2

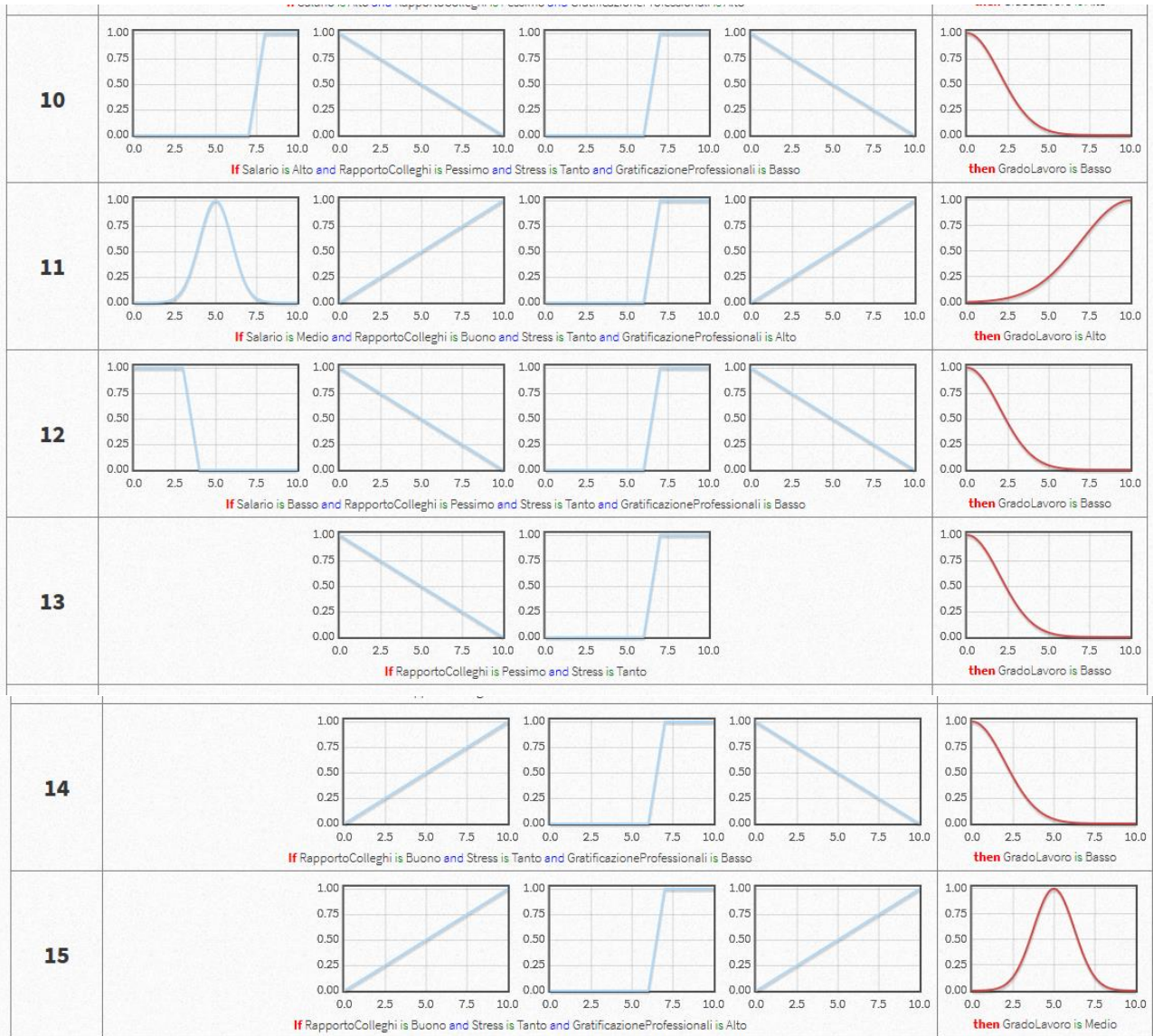
Adesso proviamo a cambiare i valori:

Salario = 7; RapportoColleghi = 8; Stress = 9; GratificazioneProfessionale = 8

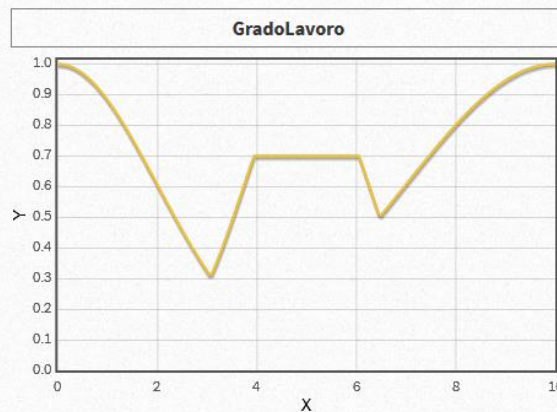
Andiamo a vedere i risultati ottenuti:

Output : GradoLavoro

Rule n _i	Antecedent(s)	Consequent
1	 <p style="text-align: center;">If Salario is Alto</p>	 <p style="text-align: center;">then GradoLavoro is Alto</p>
2	 <p style="text-align: center;">If RapportoColleghi is Buono</p>	 <p style="text-align: center;">then GradoLavoro is Alto</p>
3	 <p style="text-align: center;">If Stress is Tanto</p>	 <p style="text-align: center;">then GradoLavoro is Basso</p>
4	 <p style="text-align: center;">If RapportoColleghi is Pessimo</p>	 <p style="text-align: center;">then GradoLavoro is Basso</p>
5	 <p style="text-align: center;">If Salario is Basso</p>	 <p style="text-align: center;">then GradoLavoro is Basso</p>
6	  <p style="text-align: center;">If Salario is Alto and RapportoColleghi is Pessimo</p>	 <p style="text-align: center;">then GradoLavoro is Medio</p>
7	  <p style="text-align: center;">If Salario is Medio and RapportoColleghi is Pessimo</p>	 <p style="text-align: center;">then GradoLavoro is Basso</p>
8	  <p style="text-align: center;">If Salario is Basso and RapportoColleghi is Pessimo</p>	 <p style="text-align: center;">then GradoLavoro is Basso</p>
9	   <p style="text-align: center;">If Salario is Alto and RapportoColleghi is Pessimo and GratificazioneProfessionali is Alto</p>	 <p style="text-align: center;">then GradoLavoro is Alto</p>



Result :



Defuzzification method :

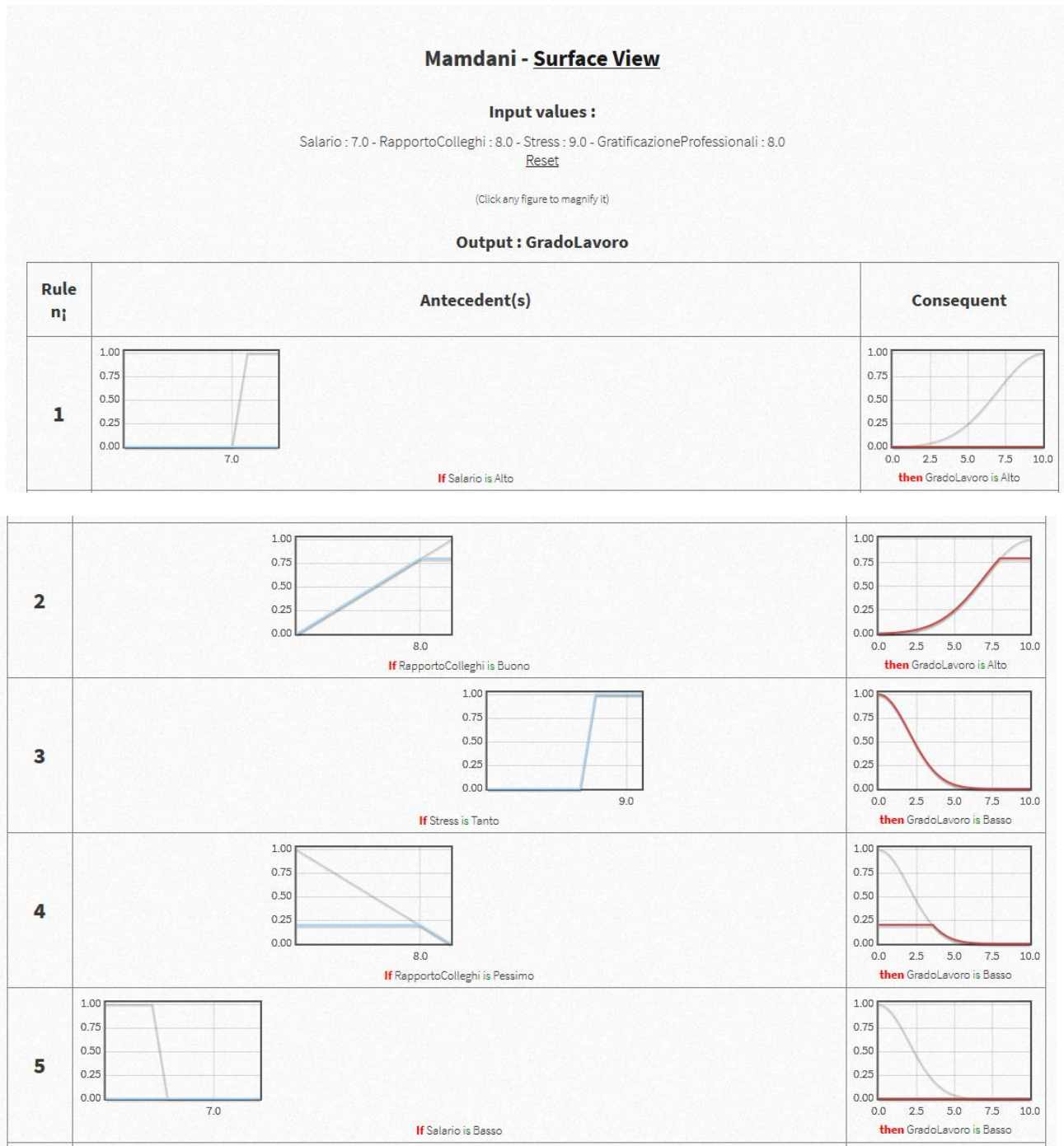
GradoLavoro : 5.176984603887844

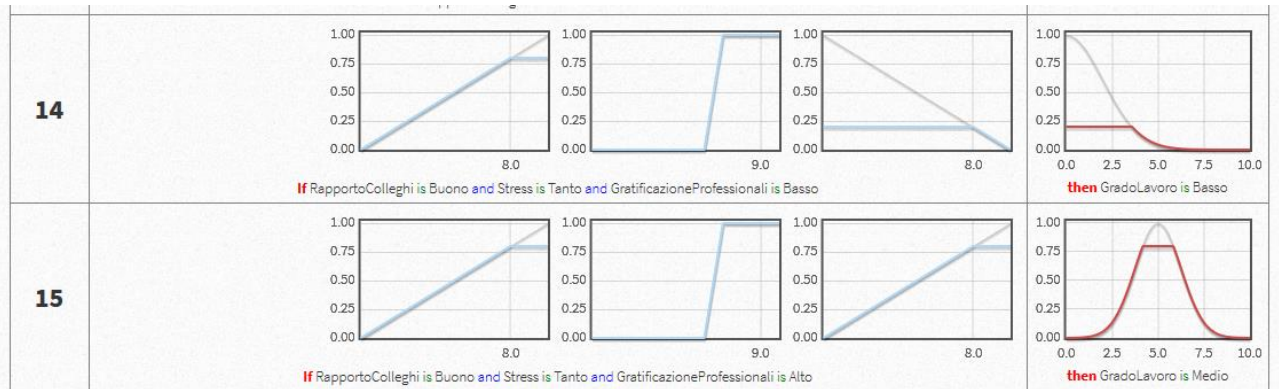
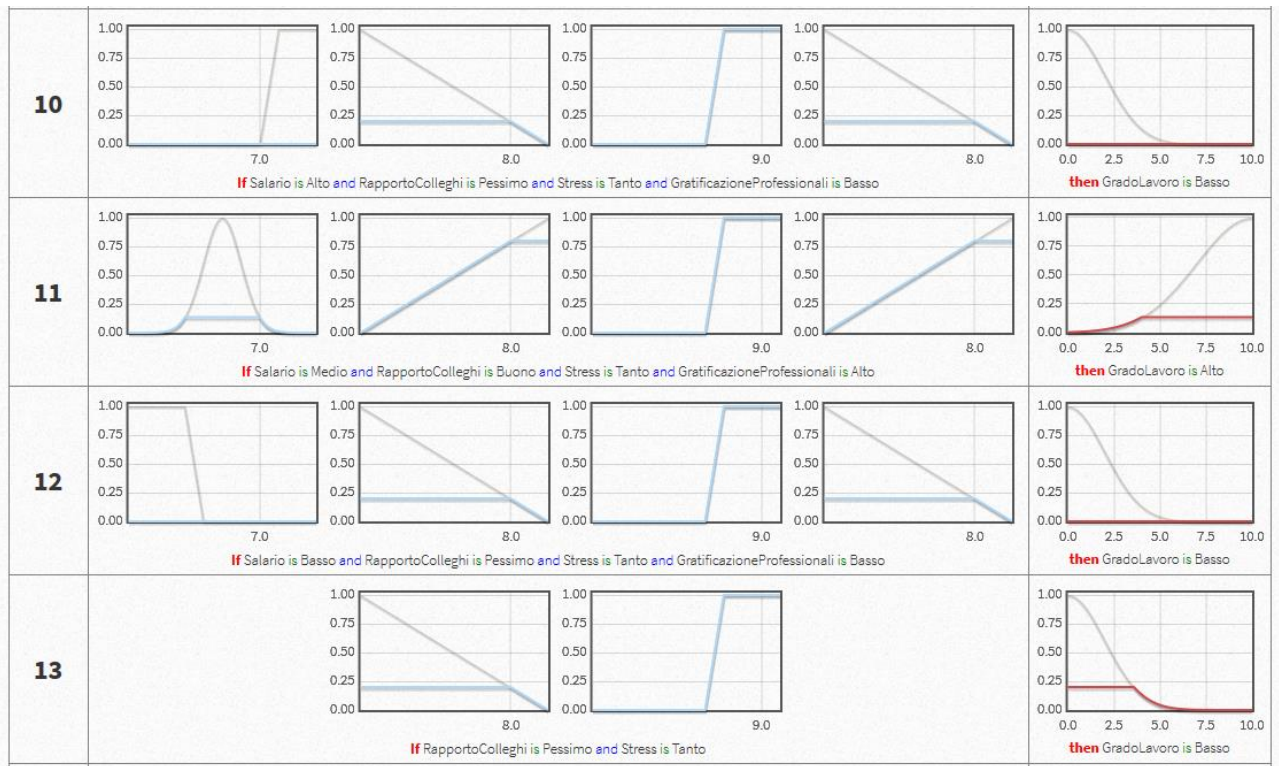
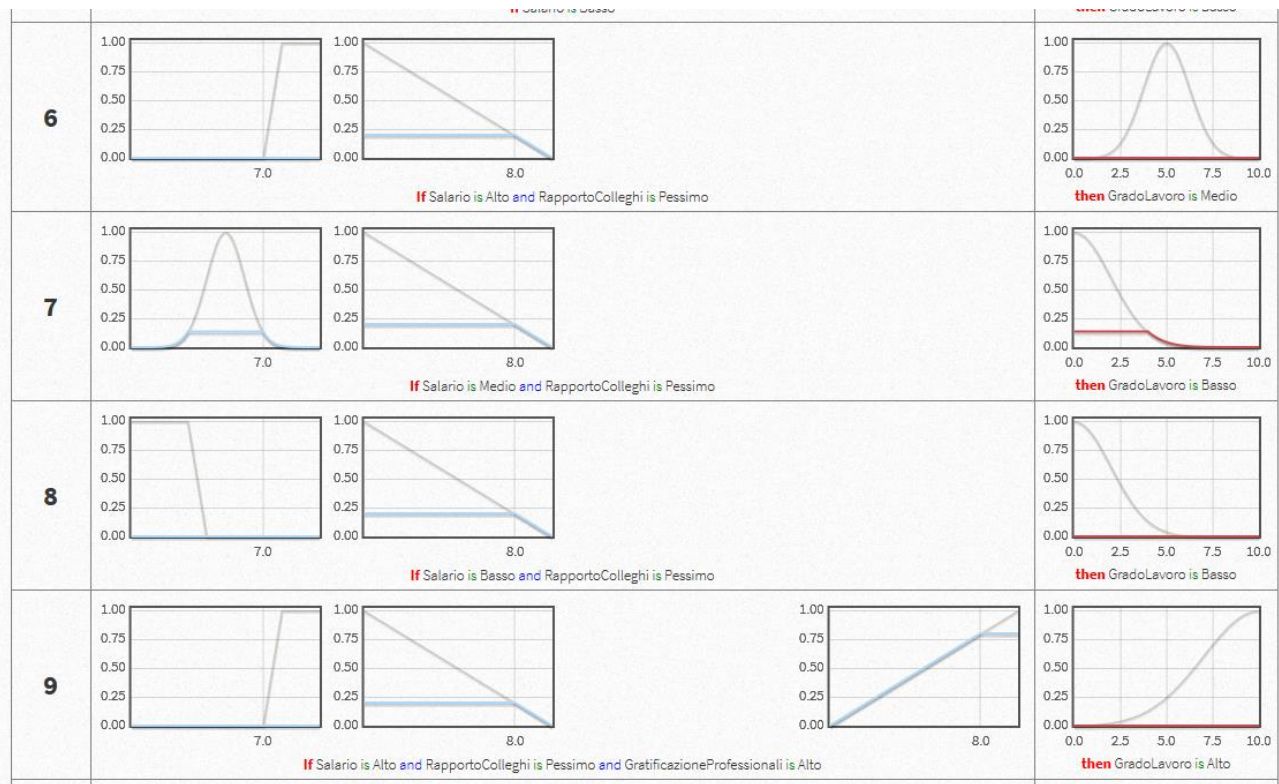
Il Grado del lavoro con i dati del secondo esperimento è circa **5.18**

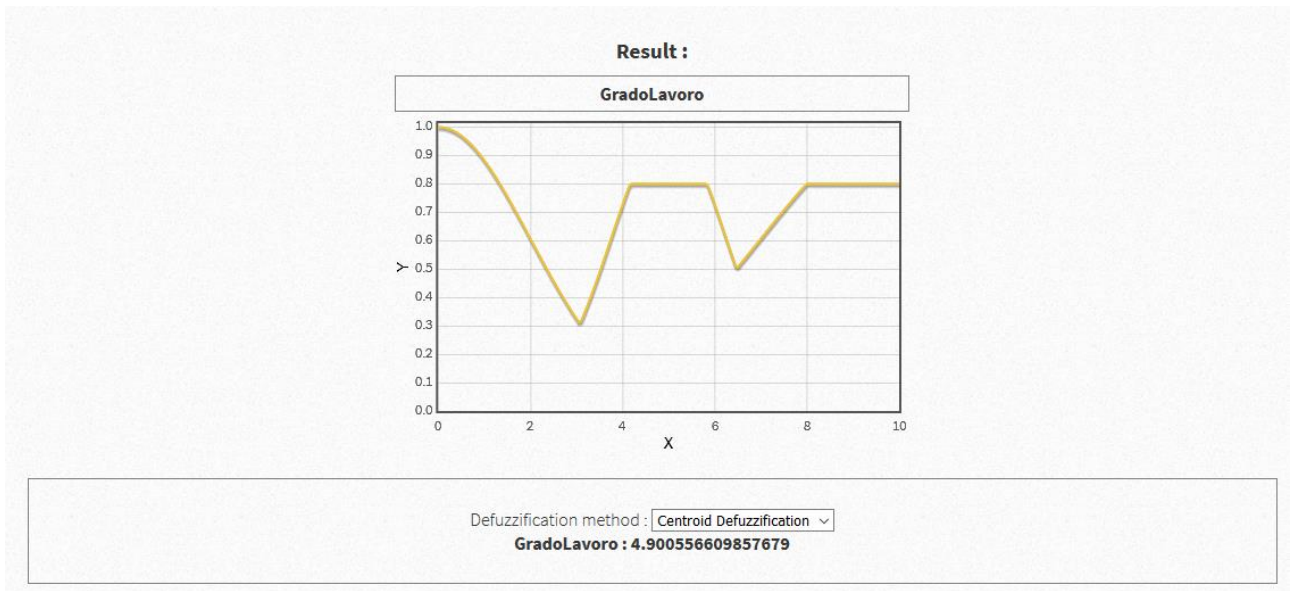
Entrambi gli esperimenti precedenti sono stati fatti lasciando i Computation methods di default.

Dopo abbiamo eseguito un ulteriore esperimento variando i valori della sezione Computation methods.

1) Computation methods: **Product**



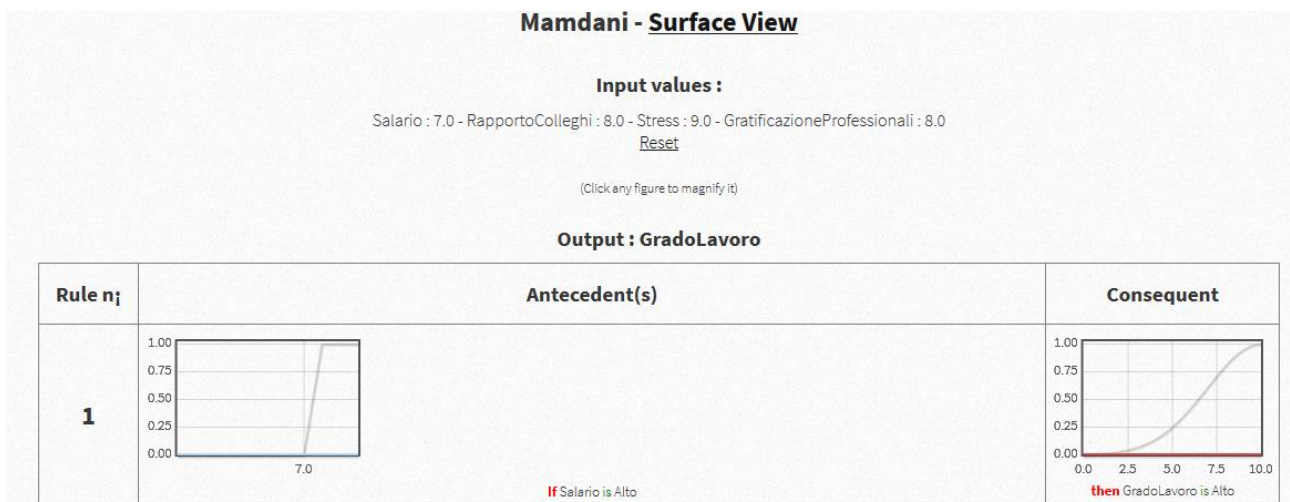



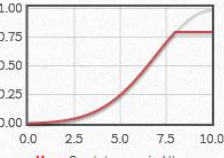

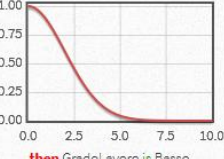


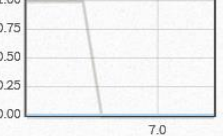




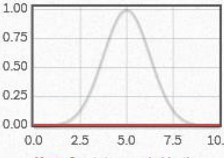
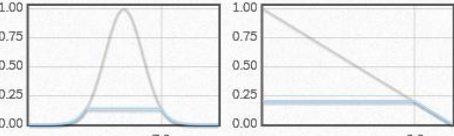
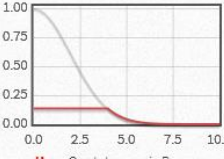
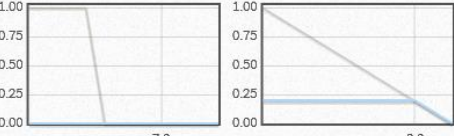
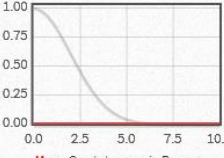
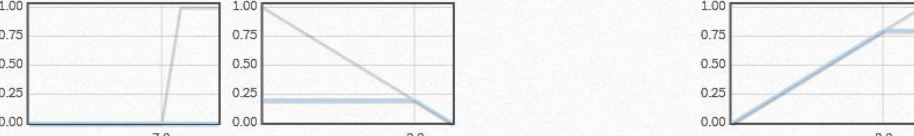
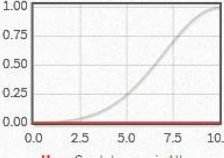
Scegliendo come Computation methods il **Prodotto**, il risultato finale (cioè il Grado del Lavoro) è del **4.90**.

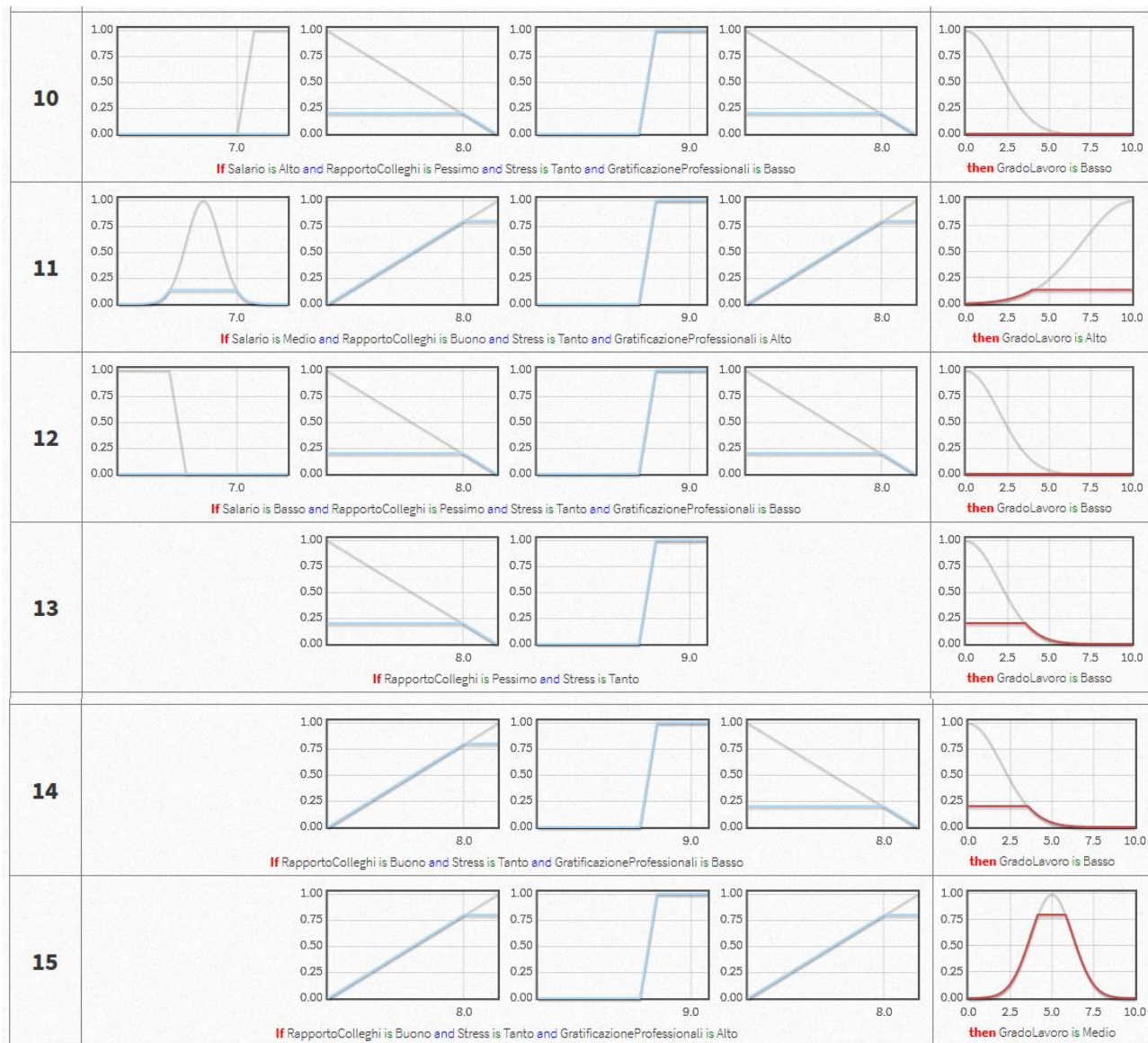
Adesso vediamo quale sarà il grado del lavoro ponendo Computation methods = **Minimum**.

2) Computation methods: **Minimum**



2	 <p data-bbox="646 246 821 268">If RapportoCollegli is Buono</p>	 <p data-bbox="1252 246 1412 268">then GradoLavoro is Alto</p>
3	 <p data-bbox="678 436 790 459">If Stress is Tanto</p>	 <p data-bbox="1252 436 1412 459">then GradoLavoro is Basso</p>
4	 <p data-bbox="646 627 821 649">If RapportoCollegli is Pessimo</p>	 <p data-bbox="1252 627 1412 649">then GradoLavoro is Basso</p>
5	 <p data-bbox="678 817 790 840">If Salario is Basso</p>	 <p data-bbox="1252 817 1412 840">then GradoLavoro is Basso</p>

6	 <p data-bbox="582 1041 885 1064">If Salario is Alto and RapportoCollegli is Pessimo</p>	 <p data-bbox="1252 1041 1412 1064">then GradoLavoro is Medio</p>
7	 <p data-bbox="582 1232 885 1254">If Salario is Medio and RapportoCollegli is Pessimo</p>	 <p data-bbox="1252 1232 1412 1254">then GradoLavoro is Basso</p>
8	 <p data-bbox="582 1422 885 1444">If Salario is Basso and RapportoCollegli is Pessimo</p>	 <p data-bbox="1252 1422 1412 1444">then GradoLavoro is Basso</p>
9	 <p data-bbox="470 1601 997 1624">If Salario is Alto and RapportoCollegli is Pessimo and GratificazioneProfessionali is Alto</p>	 <p data-bbox="1252 1601 1412 1624">then GradoLavoro is Alto</p>



Scegliendo come Computation methods il **Minimum**, il risultato finale (cioè il Grado del Lavoro) è del **5.02**.

Quindi, riassumendo, dagli ultimi due esperimenti abbiamo notato che effettivamente il Minimum è più ottimista del Product.