

## Experiment 02 : Implement Decision making models.

**Learning Objective :** Students should be able to apply a Cognitive computing approach to solve any problem.

**Tool :** RapidMiner

### Theory :

Implementing decision making in cognitive computing involves creating a system that can process information, understand context, analyze data, and provide appropriate responses or actions. This can be achieved through the use of machine learning algorithms, natural language processing, and other artificial intelligence techniques. The system must be trained on relevant data and evaluated to ensure that it is making accurate and consistent decisions. Additionally, incorporating feedback loops can help improve the system's decision-making capabilities over time.

### Implementation :

#### **Analysis and Design :**

**Data Analysis :** The dataset is used to predict the Diabetes. Different parameters such as the BloodPressure, BMI, DiabetesPedigree, Outcome, etc. were considered. The dataset was checked for null values.

Row No.	Pregnancies	Glucose	BloodPress...	SkinThickne...	Insulin	BMI	DiabetesPe...	Age	Outc
1	6	148	72	35	0	33.600	0.627	50	Yes
2	1	85	66	29	0	26.600	0.351	31	No
3	8	183	64	0	0	23.300	0.672	32	Yes
4	1	89	66	23	94	28.100	0.167	21	No
5	0	137	40	35	168	43.100	2.288	33	Yes
6	5	116	74	0	0	25.800	0.201	30	No
7	3	78	50	32	88	31	0.248	26	Yes
8	10	115	0	0	0	35.300	0.134	29	No
9	2	197	70	45	543	30.500	0.158	53	Yes
10	8	125	96	0	0	0	0.232	54	Yes
11	4	110	92	0	0	37.600	0.191	30	No
12	10	168	74	0	0	38	0.537	34	Yes
13	10	139	80	0	0	27.100	1.441	57	No
14	1	189	60	23	846	30.100	0.398	59	Yes

**Data Modeling :** The decision tree algorithm was applied on the dataset.

**Optimization :** To optimize and get better results Nominal cross validation. To reduce the size of the decision tree various hyperparameters were manually set such as max depth , min leaf sample, etc.

### **Deployment :**

In RapidMiner, deploy the trained decision-making model by exporting it to a deployable format and integrating it seamlessly with your cognitive computing system or application for real-time decision support.

### **Result and Discussion :**

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accuracy: 71.43%

	true Yes	true No	class precision
pred. Yes	17	7	70.83%
pred. No	37	93	71.54%
class recall	31.48%	93.00%	

### **Learning Outcomes :** Students should have the ability to

LO 1.1: Formulate the problem using AI and CC Approach.

LO 1.2: Solve the problem using AI and CC Approach.

### **Course Outcomes :**

CO 1: Understand and Apply future directions of Cognitive Computing.

### **Conclusion :**

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### **Viva Questions :**

Q1. Define a decision making concept with an example.

Q2. Discuss various items or elements to be considered during decision making.

Q3. Illustrate 3 scenarios using the decision making approach.

**For Faculty Use**

<b>Correction Parameters</b>	<b>Formative Assessment [40%]</b>	<b>Timely completion of Practical [ 40%]</b>	<b>Attendance / Learning Attitude [20%]</b>	<b>Total</b>
<b>Marks Obtained</b>				

