

## A APPENDIX

**Table 1: Example rules.**

Dataset	Rules	Conclusion
Pima[2]	$Glucose > 150 \wedge Insulin > 120 \wedge BMI > 40.2$	This rule indicates the Early Type-2 diabetes, which is summarized by elevated fasting glucose, and high insulin levels and an increased BMI.
	$Glucose > 150 \wedge Insulin \leq 10 \wedge BMI > 40.2$	This rule indicates Advanced Type-2 diabetes, summarized by elevated fasting glucose and low insulin concentrations.
	$Glucose > 150 \wedge Insulin \leq 10 \wedge BMI \leq 22.6 \wedge DiabetesPedigreeFunction > 0.875 \wedge Pregnancies > 2$	This rule indicates Type-1 diabetes, highlighting its features as elevated fasting blood glucose, decreased insulin levels, a reduced BMI, and a familial history of diabetes.
	$Glucose \leq 57 \wedge Insulin > 245 \wedge DiabetesPedigreeFunction > 0.875 \wedge BMI \leq 22.6 \wedge Pregnancies > 2$	This rule indicates Type-1 diabetes, characterized by a decreased BMI, a familial history of diabetes, normoglycemia, and elevated insulin levels. Such a profile can be attributed to certain Type-1 diabetic individuals accustomed to administering exogenous insulin during morning fasts.
	$Glucose \leq 57 \wedge Insulin > 245 \wedge DiabetesPedigreeFunction \leq 0.875$	This rule indicates Early Type-2 diabetes because of high insulin levels and a family history of the disease.
Cover[1]	$Dist\_Hydrology \leq 42 \wedge Elevation \leq 2231 \wedge Dist\_Roadways > 73 \wedge Aspect \leq 119.0$	This Rule is appropriate for the growth of cottonwood and willow. This is attributed to the lower elevation of the area, associated with the presence of abundant water sources.
	$60 < Dist\_Hydrology \leq 390 \wedge Elevation \leq 2231 \wedge Dist\_Roadways > 73 \wedge Aspect > 180.0$	This rule is appropriate for the growth of Ponderosa pine and Douglas-fir. This is attributed to the lower elevation of the area, associated with the moderate distance from water sources.
	$42 < Dist\_Hydrology \leq 60 \wedge 2231 < Elevation \leq 2526 \wedge Hillshade\_9am > 206$	This rule is only suitable for the growth of willow, as only willow can adapt to this range of elevation.
	$390 < Dist\_Hydrology \leq 551 \wedge Elevation \leq 2321 \wedge Dist\_Roadways \leq 1702 \wedge Aspect > 180$	This rule is exclusively appropriate for the growth of Ponderosa Pine. This is attributed to its greater distance from water sources, coupled with Ponderosa Pine's commendable drought resistance.
	$60 < Dist\_Hydrology \leq 390 \wedge 2231 < Elevation \leq 2526 \wedge Dist\_Roadways > 73 \wedge Aspect \leq 90.0$	This rule is solely appropriate for the growth of Douglas-fir. This is due to its slightly farther distance from water sources, combined with Douglas-fir's moderate drought resistance and its ability to thrive in higher elevations. Moreover, as a sapling, it requires shade to grow, so a northern orientation does not affect its survival.

## REFERENCES

- [1] 1998. Coverttype. <https://archive.ics.uci.edu/dataset/31/coverttype>.
- [2] 2016. Pima. [https://www.dbs.ifi.lmu.de/research/outlier-evaluation/DAMI/semantic/Pima/Pima\\_35.html](https://www.dbs.ifi.lmu.de/research/outlier-evaluation/DAMI/semantic/Pima/Pima_35.html).