Lab 3

# Readings: Chapter 2 from Davidson-Pilon (2016).

**Questions (only one answer is correct):**

import pymc as pm

parameter = pm.Exponential("poisson\_param", 1)

data\_generator = pm.Poisson("data\_generator", parameter)

data\_plus\_one = data\_generator + 1

**Q1. The distribution of parameter is continuous:**

1. **Correct.**
2. **Incorrect.**

**Q2. Which of the previous variables is both a parent and a child variable?**

1. **Parameter**
2. **Data\_generator**
3. **Data\_plus\_one**

**Q3. Parameter is:**

1. **A child variable**
2. **A parent variable**
3. **Both a parent and a child variable**

X = pm.DiscreteUniform("X", lower = 1, upper = 6, size = 5); print(X.value)

Y = pm.DiscreteUniform("Y", lower = 0, upper = 5); print(Y.value)

Z = pm.\_\_\_\_\_\_\_\_\_\_ ("Z", X.value, Y.value); print(Z.value)

**Q4. The previous code has a missing part. Which of the following words should added there?**

1. **Lambda**
2. **Index**
3. **LinearCombination**

**Programming.**

**P1. The absolute difference between two independent standard uniform variables (uniform on (0,1)) has a particular triangular distribution (see** [**https://en.wikipedia.org/wiki/Triangular\_distribution**](https://en.wikipedia.org/wiki/Triangular_distribution)**(**

1. **Use this particular distribution to generate a sample for the absolute difference between two independent standard uniform variables**
2. **Can you generate a sample for the absolute difference between two independent standard uniform variables directly (without using the triangular distribution)?**

**P2. Try putting in extreme values for our observations in the cheating example. What happens if we observe 25 affirmative responses? 10? 50?**

# Cited works:

Davidson-Pilon. (2016a). *Bayesian Methods for Hackers: Probabilistic Programming and Bayesian Inference*. Crawfordsville, United States: Addison-Wesley.

Davidson-Pilon, C. (2016b). Extras from Chapter 2. Retrieved from http://nbviewer.jupyter.org/github/CamDavidsonPilon/Probabilistic-Programming-and-Bayesian-Methods-for-Hackers/blob/master/Chapter2\_MorePyMC/Ch2\_MorePyMC\_PyMC2.ipynb