

Rapport package team

GLM

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Contents

Description	1
Introduction	1
Overview	2
Description	2
Introduction	2
Overview	3
Description	3
Introduction	3
Overview	4

Description

In this template Reporter will present you GLM.

Introduction

[Generalized Linear Model \(GLM\)](#) is a generalization of the ordinary [Linear Regression](#). While using GLM we don't need the assumption of normality for response variables. There are two basic ideas of the model: It allows the linear model to be related to the response variable via a link function and the magnitude of the variance of each measurement to be a function of its predicted value. An extension to the GLM is the [Hierarchical generalized linear model](#).

Overview

Multivariate-General Linear Model was carried out, with *Internet usage in leisure time (hours per day)* and *Internet usage for educational purposes (hours per day)* as independent variables, and *Age* as a dependent variable. The [interaction](#) between the independent variables was taken into account.

	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	3.198	0.02122	150.7	0
leisure	-0.02021	0.005847	-3.457	0.000547
edu	0.01474	0.007586	1.944	0.05196
leisure:edu	0.004439	0.001795	2.472	0.01342

Table 1: Fitting General Linear Model: age based on *leisure* and *edu*

From the table one can see that

- (Intercept) has significant effect on the dependent variable, the p-value of that is 0
- leisure has significant effect on the dependent variable, the p-value of that is 0.001
- leisure:edu has significant effect on the dependent variable, the p-value of that is 0.013

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Overview

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	Estimate	Std. Error	z value	Pr(> z)
(Intercept)	3.163	0.01605	197.1	0
leisure	-0.0095	0.003888	-2.443	0.01455
edu	0.03071	0.003883	7.91	2.581e-15

Table 2: Fitting General Linear Model: age based on *leisure* and *edu*

From the table one can see that

- (Intercept) has significant effect on the dependent variable, the p-value of that is 0
- leisure has significant effect on the dependent variable, the p-value of that is 0.015
- edu has significant effect on the dependent variable, the p-value of that is 0

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Multivariate-General Linear Model was carried out, with *Internet usage in leisure time (hours per day)* and *Internet usage for educational purposes (hours per day)* as independent variables, and *Age* as a dependent variable. The [interaction](#) between the independent variables wasn't taken into account.

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	0.0422	0.0008599	49.08	4.612e-212
leisure	0.0003828	0.0002093	1.829	0.06785
edu	-0.001182	0.0001948	-6.065	2.332e-09

Table 3: Fitting General Linear Model: age based on *leisure* and *edu*

From the table one can see that

- (Intercept) has significant effect on the dependent variable, the p-value of that is 0
- edu has significant effect on the dependent variable, the p-value of that is 0

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