University of St. Gallen
School of Management, Economics, Law, Social Sciences,
International Affairs and Computer Science

Some Title

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Some Subtitle

November 2, 2023

Your Name
Your Address
ZIP Code Your City
09-xyz-xyz

Master's Thesis
Prof. PhD Jon Doe
Fall 2016

Abstract

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Preface

Thanks to…

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Contents

List of Tables

List of Figures

1 Introduction

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

2 Data

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

Useful package: `stargazer` produced table 1 (Hlavac, 2014). One can see that the mean of sepal length is 5.8433333. You can install required packages on the fly, using the function shown in appendix B on page 8.

2.1 Summary Statistics

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Table 1: Summary statistics of the iris database

Statistic	N	Mean	St. Dev.	Min	Max
Sepal.Length	150	5.843	0.828	4.300	7.900
Sepal.Width	150	3.057	0.436	2.000	4.400
Petal.Length	150	3.758	1.765	1.000	6.900
Petal.Width	150	1.199	0.762	0.100	2.500

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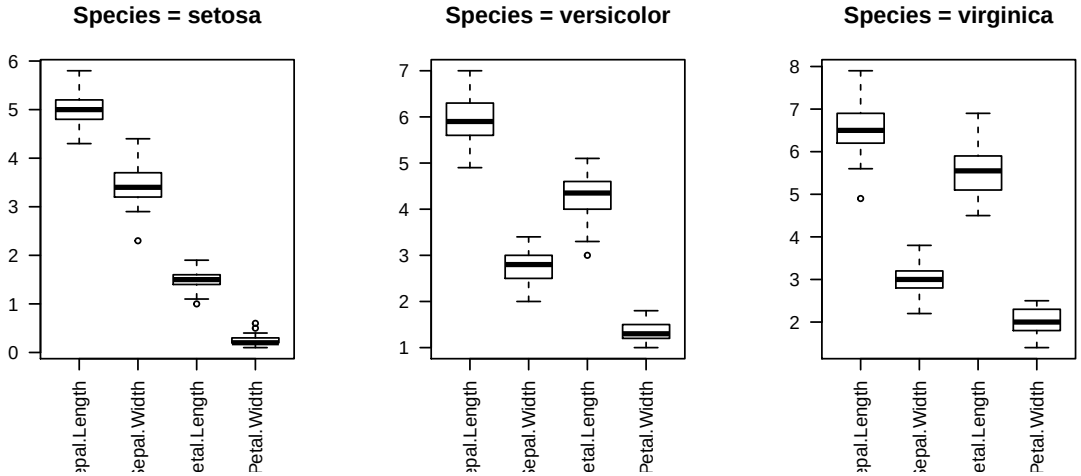

Figure 1: Boxplots of the iris data for all three species

some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language. Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

2.2 Further Statistics

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. If you read this text, you will get no information. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. This text should contain all letters of the alphabet and it should be written in of the original language. There is no need for special content, but the length of words should match the language.

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For the boxplots, see figure 1 on the preceding page.

3 Conclusion

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References

Hlavac, M. (2014). stargazer: Latex/html code and ascii text for well-formatted regression and summary statistics tables [Computer software manual]. Cambridge, USA. Retrieved from `http://CRAN.R-project.org/package=stargazer` (R package version 5.1)

A Data Declaration

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B R-Code

```
import math

def int_to_string(i):
    length = math.ceil(i.bit_length() / 8)
    return i.to_bytes(length, byteorder='little').decode()

"""
Because they were respectful of the environment and used the same randomness seed for
the first prime, we can break the encryption.
Because Na = Pa * Qa
and Nb = Pb * Qb, where Pa == Pb
so Nb = Pa * Qb

Because both N are now a multiple of Pa, we can find Pa by computing the gcd of the two N.
"""

NA = 191684263187110552755407703026418807623605749676563287536762975203204269778498941971574726431445332735095276056009773909170787111031073977735372058949755327381695314633042288263109312992444472472514547491017227570239512048849272186802739266812272416861796650723837655831729989005496128746102105657762277591567454974931260315593019523705667793040664943829252335233176051729197745621541797714469192582368778071983991692108458060251997078690836622954348783990443098596210879114138446531502164670103497508363868942516418675003274724178375713667322183828663414579163405379647115386278239720947268719036233301841614409637
NB = 149055841814245992333919389868995948971453112285261108436938009459206261636608794621961023964023914263290380532824976492912281864726505083894912442000099284845540787129842664910007130259666177179603223093198371495957327751831940581863416612059538508063691468030543381688645374164425372281192324941040515358761395881475981228534199651437377021782856693887741195418273624486596810101762745934567634596307225286115548298633375986704425896388867117769447018508643679245160529592478053618900933512414434063353886357515619420718881931146445356139356801835633559138403007873299339406391628992223869568291457899733500606503891
e = 65537

# 1. Compute the GCD of NA and NB to find pA
pA = math.gcd(NA, NB)
print(f"Found prime pA: {pA}")

# 2. Compute qA and qB using the found pA
qA = NA // pA
qB = NB // pA
print(f"Found prime qA: {qA}")
print(f"Found prime qB: {qB}")

# 3. Compute the private keys for Alice and Bob
phiA = (pA - 1) * (qA - 1)
phiB = (pA - 1) * (qB - 1)
dA = pow(e,-1,phiA)
dB = pow(e,-1,phiB)

print(f"Alice's private key dA: {dA}")
print(f"Bob's private key dB: {dB}")

# 4. Decrypt the messages

ciphertext_Alice = 141437195021726446436495584644113939672871319471229880821614407077798421453321875979784448923630729803062152726713641447261074017401392609546517885584051293538384432493987883470238673660010144985428669870647897591660626873669735976797171163927410394566414652614922531852296401591731871753257286857498262156341105716963920929362143472431372380268165639422433012772783410019846618535801302626429236640521160832194521097003374961566136715456610105491
```

```
06142045781557878878684350896251899990004915096535841968594077590128827860931559492953939540312258535922448952667047837147864604396270415774650138410458838375277076213240decrypted_message_Alice = pow(ciphertext_Alice, dB, NB)print(f"Decrypted message from Alice to Bob: {int_to_string(decrypted_message_Alice)}")ciphertext_Bob = 602522620867405790890015135096580716147827785688818615404601157037065223020875505649496160033634938830939136074477407430933701177557425953651514968604266154001366208716807114930711531688284625192786167272316089940829420374160700757278958126752533924230436585207711917969720151511077289440718537356113427293110204261123778985350840342941033933364580469401741578821176934541616417347496118043325430887798174796734353010522353854627652846267335581936439185416921391657965754342893923763037633285073229787440337364911124588111404294387136869600099572279727310350251744283590464289259979778207780020762861856657654064265 2decrypted_message_Bob = pow(ciphertext_Bob, dA, NA)print(f"Decrypted message from Bob to Alice: {int_to_string(decrypted_message_Bob)}")
```

Academic Honesty

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- that I have mentioned all the sources used and that I have cited them correctly according to established academic citation rules,
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