Computer Science 4442

Assignment 2

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Table of Contents

[1 2](#_Toc64883432)

[a) 2](#_Toc64883433)

[b) 2](#_Toc64883434)

[c) 2](#_Toc64883435)

[d) 2](#_Toc64883436)

[2. 3](#_Toc64883437)

[a) 3](#_Toc64883438)

[b) 4](#_Toc64883439)

[c) 5](#_Toc64883440)

[3. 6](#_Toc64883441)

[a) 6](#_Toc64883442)

[b) 6](#_Toc64883443)

[c) 7](#_Toc64883444)

[d) 7](#_Toc64883445)

[e) 8](#_Toc64883446)

[f) 9](#_Toc64883448)

[g) 11](#_Toc64883454)

1.

## a)

p(Water = cool|Play = yes) = **1/3**

p(Water = cool|Play = no) =  **0**

## b)

p(Play = yes|Water = warm) = **2/3**

p(Play = no|Water = warm) = **1/3**

## c)

p(Play = yes|Humid = high) = **2/3**

p(Play = yes|Humid = normal) = **1**

## d)

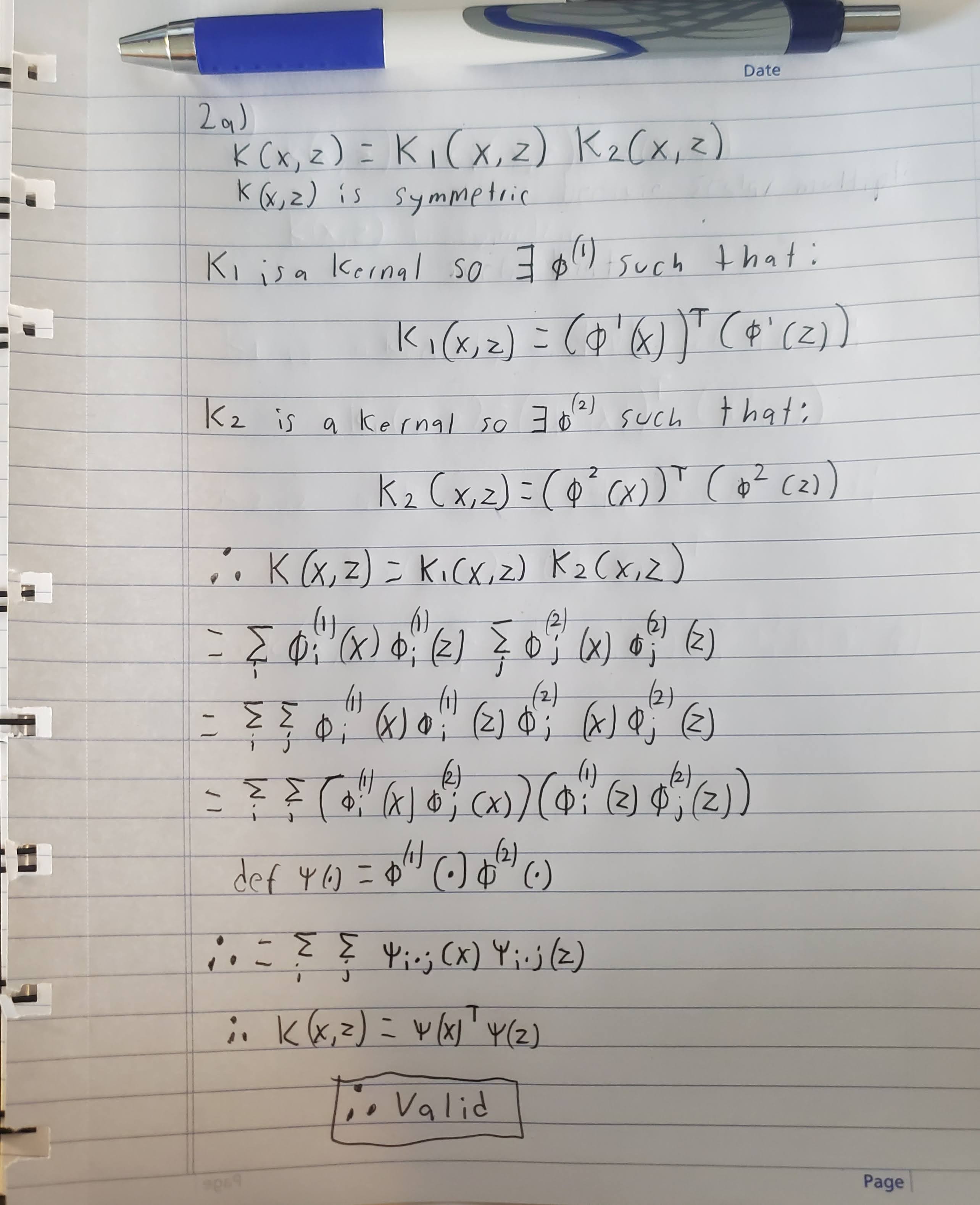
With Laplace smoothing:

p(Water = cool|Play = yes) = **2/5**

p(Water = cool|Play = no) = **1/3**

# 2.

## a)

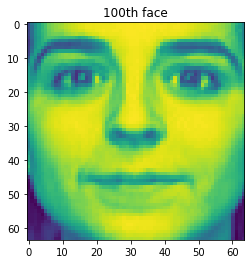


## b)

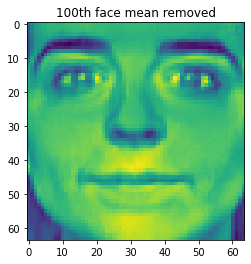
## c)

# 3.

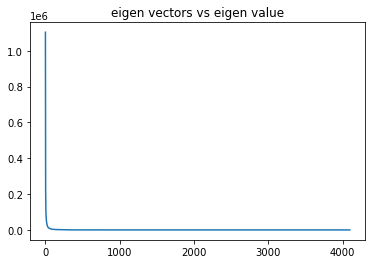
## a)



## b)



## c)



## 

## d)

This means that the null space is nontrivial in other terms the image is slightly compressed as it is of a lower dimension as well this means the matrix is not invertible.

## e)

## 

In order to keep 95% variance, we are required to keep a dimensionality of ~140 meaning we only need to keep ~100 components.

Required Dimensionality: 123

## f)

|  |  |
| --- | --- |
|  |  |
|  |  |
|  |  |

## g)

|  |  |
| --- | --- |
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