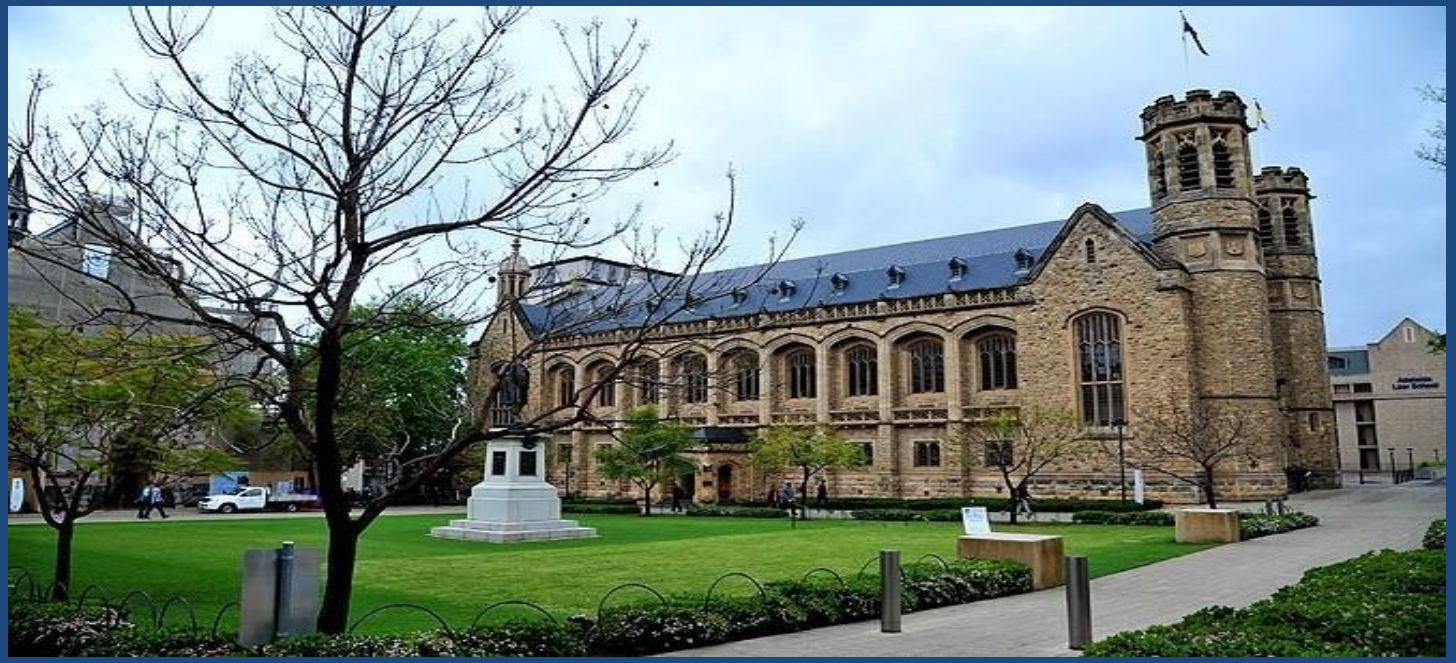
THE UNIVERSITY of ADELAIDE



2016 Masters project 141
Cracking the Voynich manuscript code

Supervisors: Prof. Derek Abbott

Dr. Brian Ng

Students: Ruihang Feng (a1674940)

Yaxin Hu (a1672395)

Outline

- ✓ Background and history.
- ✓ The Voynich manuscript.
- ✓ The project 141.
- ✓ Proposed Approach.
- ✓ Challenge and project management.
- ✓ Applications.
- ✓ Budget and Conclusion.

Background and history

Wilfrid Voynich (1865-1930)

- Born in Telsze in Polish.
- In 1912, the Voynich manuscript was found.
- In 1914, he brought the manuscript to New York.

https://en.wikipedia.org/wiki/Voynich_manuscript#/media/File:Micha%C5%82_Wojnicz_c._1885.png

The Voynich manuscript

- ✓ About 240 pages remaining.
- ✓ folios, numbered from f1 to f116.
- ✓ Each folio have two pages, r and v.

https://en.wikipedia.org/wiki/Voynich_manuscript#/media/File:Voynich_Manuscript_(170).jpg

Six sections

Herbal section

http://www.voynich.nu/q02/f016v_crd.jpg

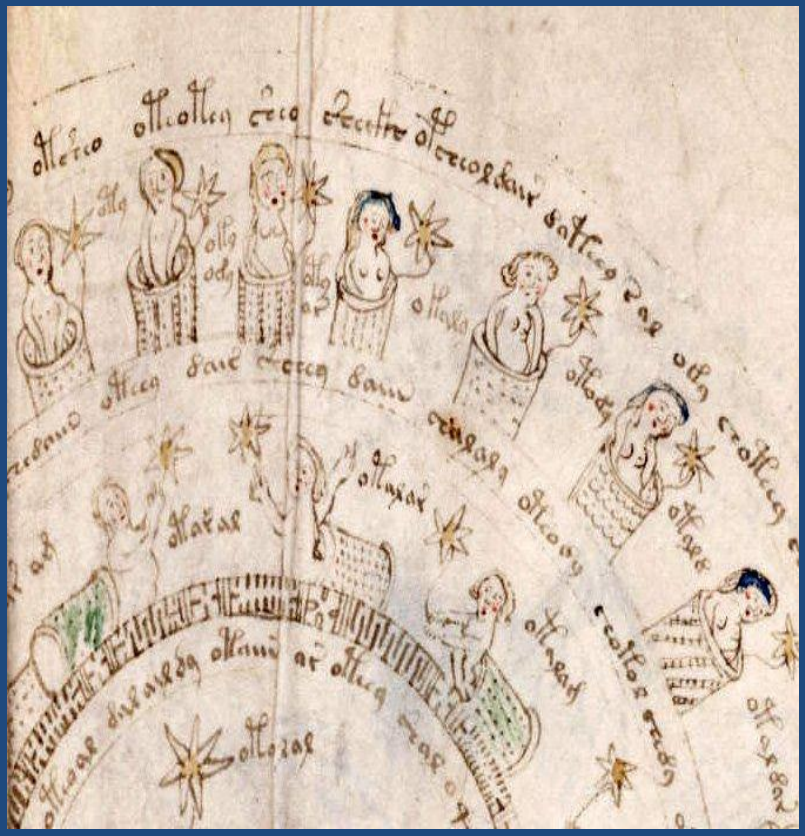
Astronomical section

http://www.voynich.nu/q09/f067r1_crd.jpg

Cosmological section

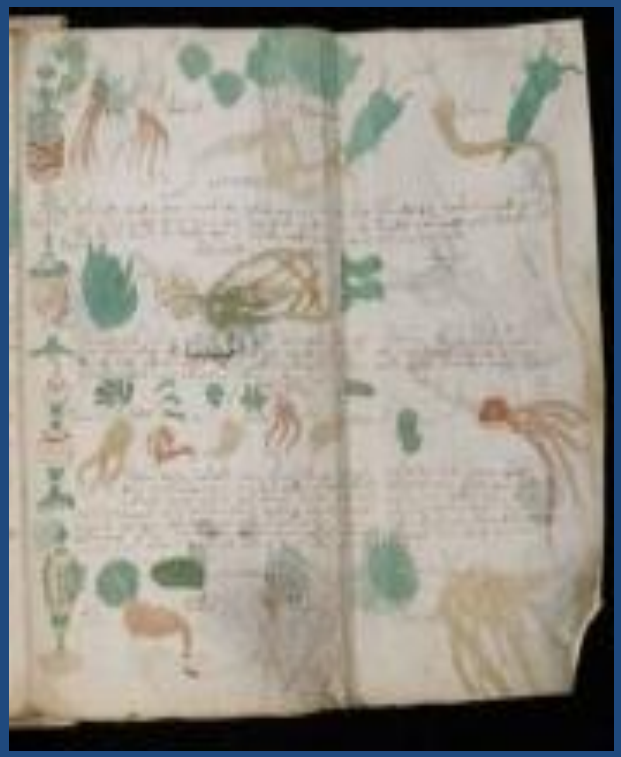
http://www.voynich.nu/q10/f069v_crd.jpg

Biological section



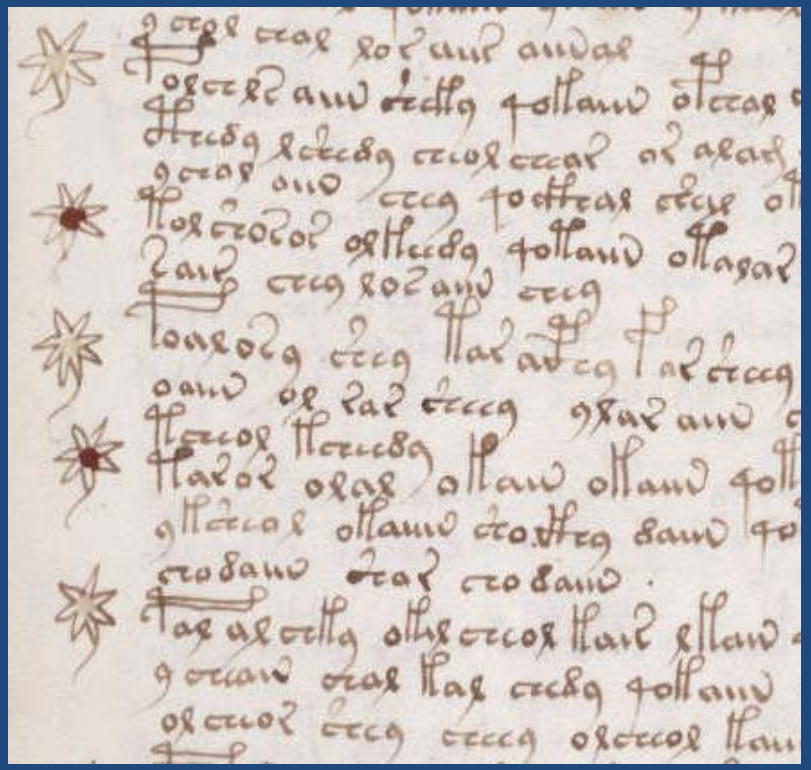
http://old.world-mysteries.com/sar_13.htm

Pharmaceutical section



http://www.voynich.nu/q15/f089r2_crd.jpg

Recipes section (marginal stars)



https://cogitz.wordpress.com/2009/09/14/the-mysterious-voynich-manuscript/

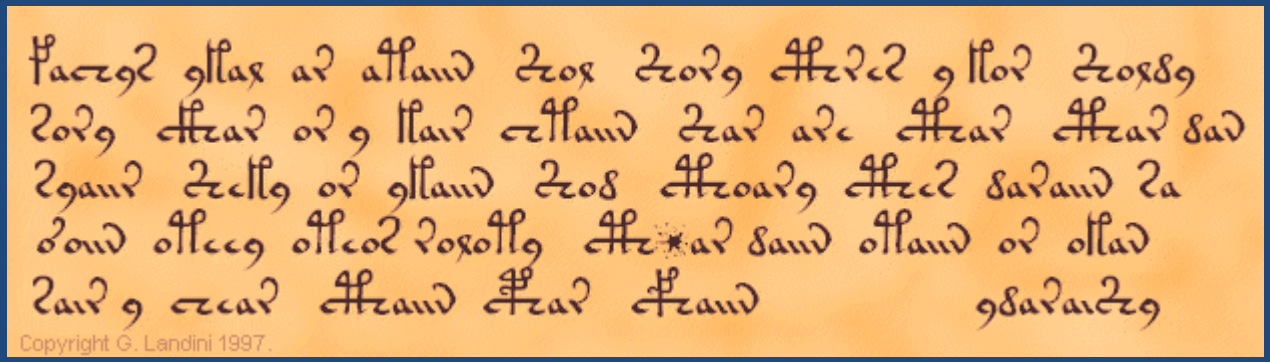
The Project 141

- ✓ First, distinguish the alphabet from abstract symbols.
- ✓ Second, compare linguistic features of Voynich manuscript with other languages.
- ✓ Third, use the statistics methods to inference that Voynich manuscript is codes, nature language, constructed language, cipher code or hoax.

* Because of the massive number of words and images in the Voynich manuscript, the aim of this project is not solve the whole Voynich manuscript, but we will crack this manuscript to the best of our abilities.

Proposed Approach

Text investigation: Words



http://www.voynich.nu/analysis.html

```
fachys ykal ar ataiin Shol Shory cThres y kor Sholdy
sory cThar or y kair chtaiin Shar are cThar cThar dan
syaiir Sheky or ykaiin Shod cThoary cThes daraiin sa
o'oiin oteey oteor roloty cTh*ar daiin otaiin or okan
sair y chear cThaiin cPhar cFhaiin    ydaraiShy
```

Text investigation: Digits

Roman digits:

Number	Roman Numeral
1	I
2	II
3	III
4	IV
5	V
6	VI
7	VII
8	VIII
9	IX
10	X

For example, if we find the form of word like‘*##’ in the Voynich manuscript:

Text investigation:

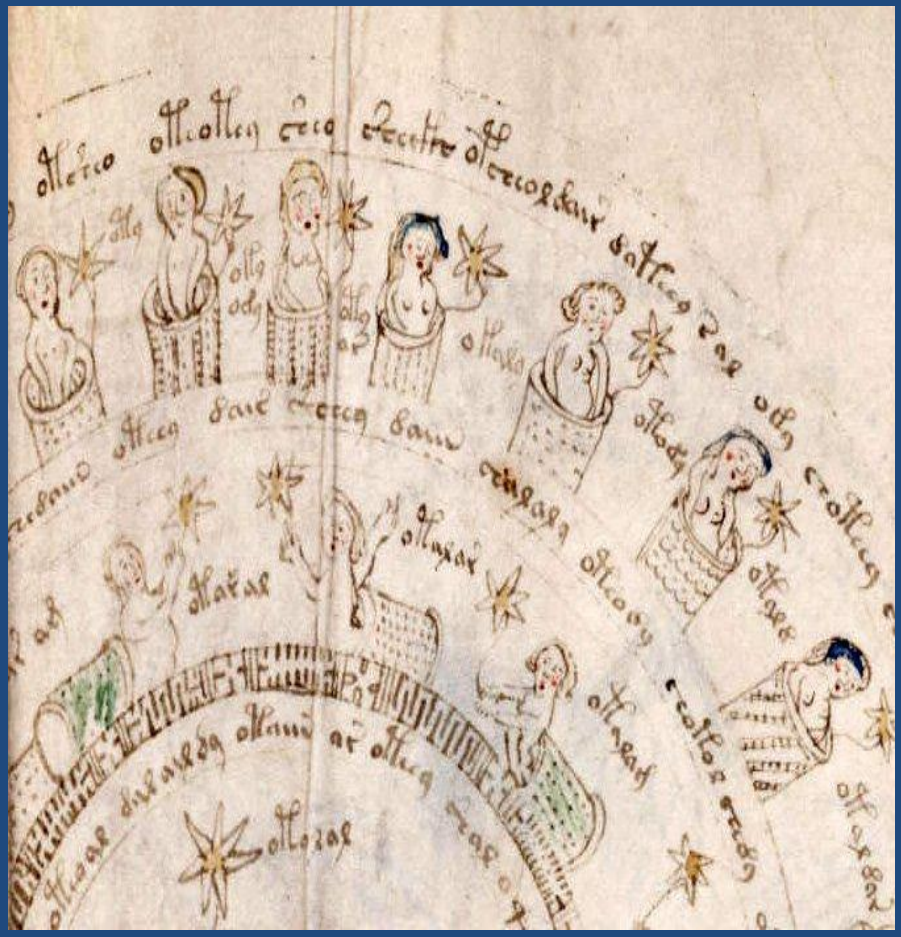
Use the MATLAB to deal with the features of the text.

- ✓ The number of words.
- ✓ Search any words which looks like digits from manuscripts.
- ✓ Count the frequency of words which appear at the start, middle or end of the text.
- ✓ Compare the text with known languages, try to translate some parts of the text.

Illustrations investigation:

Comparison

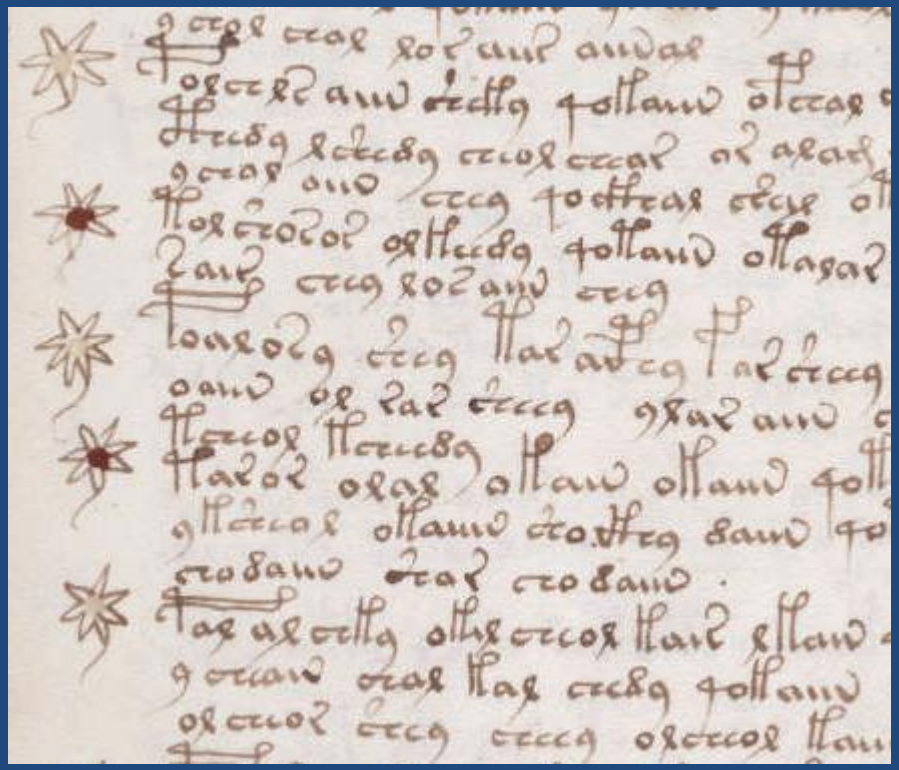
- ✓ Numbers in pictures
- ✓ Words around the pictures



http://old.world-mysteries.com/sar_13.htm

Marginal symbol research:

- ✓ Search the texts around them.
- ✓ Count the number of symbols for each page.
- ✓ Compare different pages.



https://cogitz.wordpress.com/2009/09/14/the-mysterious-voynich-manuscript/

Translation :

ar

Takahashi

English linguistic research

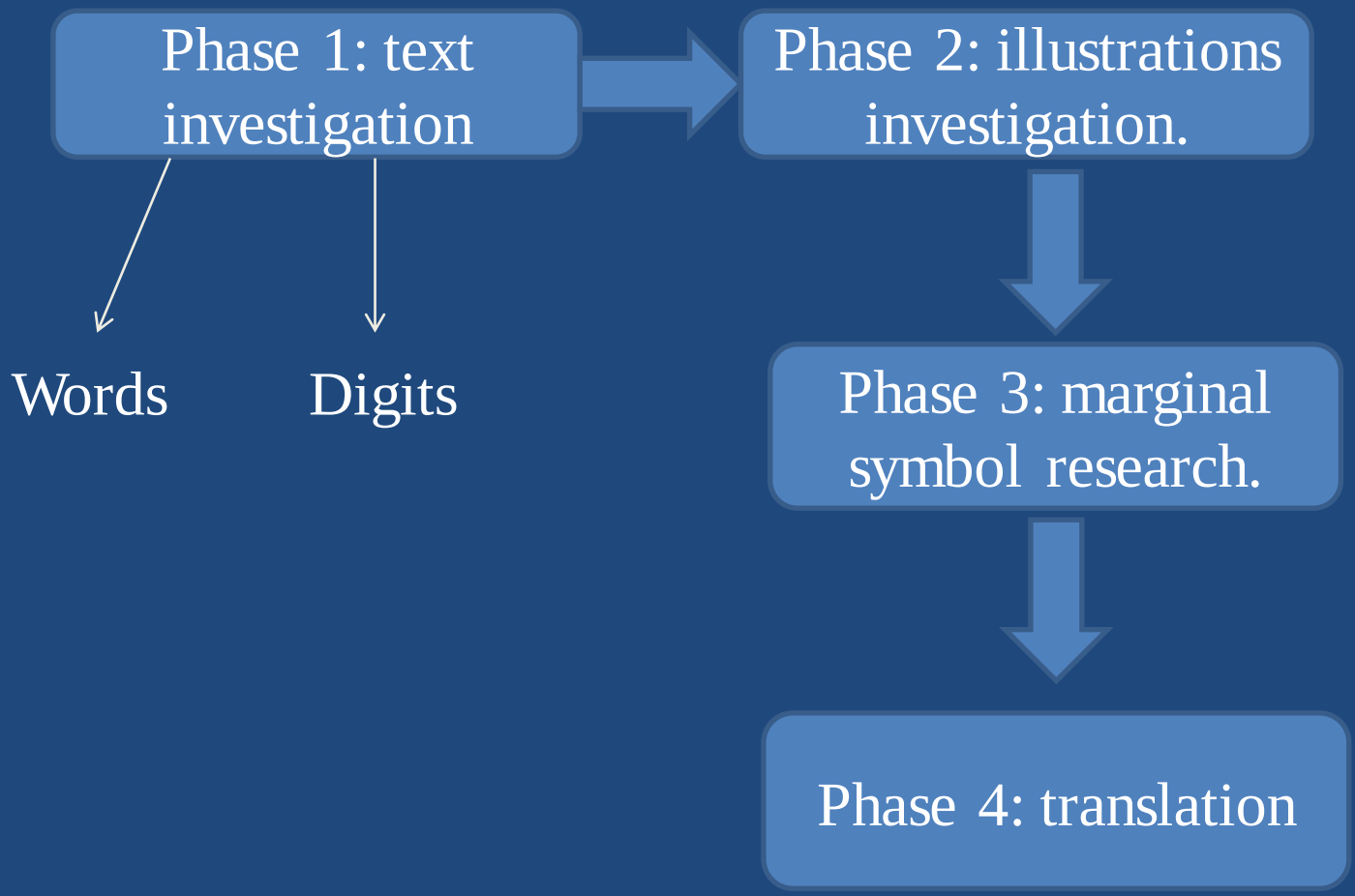
For some words, ‘e’ it maybe behind ‘r’

Add ‘e’ to the word which end with ‘r’

Maybe this new word can be understood.

It means ‘are’!

Proposed Approach



Other known methods:

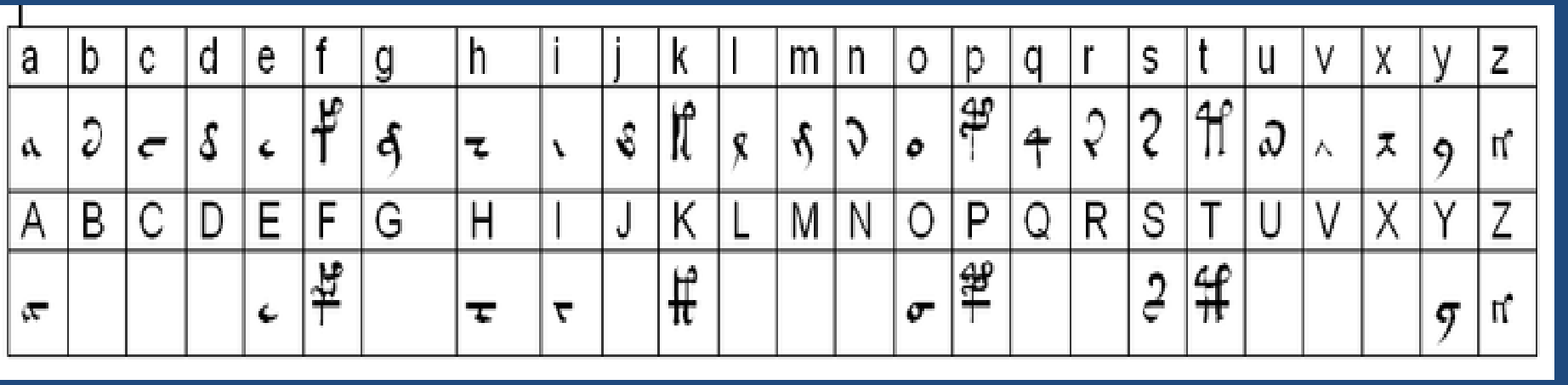
First Study Group (FSG)

Char	Bennett	FSG	Currier		Char	Bennett	FSG	Currier
	D	4	4			I	I	I
	O	O	O			IL	IE	G
	S	8	8			IIL	IIE	H
	G	G	9			IIIL	IIIE	1
	Z	2	2			IQ	IR	T
	L	E	E			IIQ	IIR	U
	Q	R	R			IIIQ	IIIR	0
	CT	T	S			U	L	D
	ET	S	Z			N	N(*)	N
	H	H	P			M	M(*)	M

http://www.voynich.nu/transcr.html

European Voynich Alphabet (EVA):

a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	x	y	z
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	X	Y	Z



https://fr.wikipedia.org/wiki/European_Voynich_Alphabet

Challenge

- ✓ Voynich manuscript are full of mysterious images, symbols and abstract text.
- ✓ No one has cracked the whole manuscript so far.
- ✓ Limited references about Voynich translation.

Project management

Schedule

No.	Task	Week
	Semester 1	
1	Background research	1
2	Text analysis	6
3	Illustration investigation	8
4	Marginal symbol research	10
	Semester 2	
5	Translation	5-9

Risk management

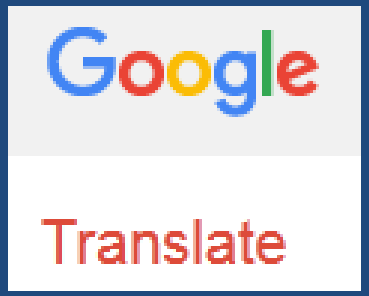
NO.	Risk	Probability	Impact
1	Mismanagement of time	Moderate	High
2	Loss of data or files	Low	High
3	Team member’s quit	Low	High
4	Lack of references	High	High
5	Health issues	Moderate	Moderate
6	Supervisor unavailable	Low	Moderate

Phase allocation

No.	Task	Student
	Semester 1	
1	Background research	Cooperation
2	Text analysis	Cooperation
3	Illustration investigation	Yaxin Hu
4	Marginal symbol research	Ruihang Feng
	Semester 2	
5	Translation	Cooperation

Application

- ✓ Data mining.
- ✓ Statistics.
- ✓ Information Theory.



Budget

- ✓ 500 AUS dollars for each member.
- ✓ Research need to be carried out further research.
- ✓ All programs that need to be used are available on University system.
- ✓ Major work are based on computer .

Conclusion

- ✓ This project is divided into four phases: Text investigation, illustrations investigation, marginal symbol research and translation.

- ✓ Goals : * Use the statistical methods and Matlab to search the language rule in the Voynich manuscript.

  * Search laws from images.

  * Investigate laws from marginal symbols.

- ✓ The major mission is based on computer work.

Reference

- ✓ René Zandbergen, the Voynich manuscript, 2004 – 2016. <http://www.voynich.nu/>

- ✓ European Voynich Alphabet (EVA). <http://www.voynich.nu/analysis.html>

- ✓ First Study Group (FSG) <http://www.voynich.nu/transcr.html>

We would like to answer all your questions.
Thank your for your attendance!