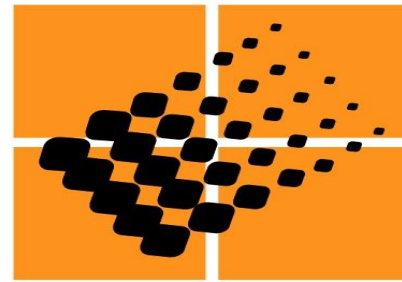


ICTA
ideas actioned



Session 1

Font , Typeface

Font Family, Style

Unicode Font Vs Non-Unicode Font

Keyboard Driver

Keyboard Layout

Keying-in Sequence

Font Rules

Rendering Engine

Font Tools - FontLab, Fontographer, RoboFont , FontForge

MS-Volt

Sinhala/Tamil Unicode support

Sinhala/Tamil publishing

Publishing Software - Adobe, Quark XPress

Unicode support in Publishing Software

Issues

Solution to Sinhala/Tamil Unicode Publishing

Demo

EXCERCISE-1

1. Open Microsoft Word
2. Select a Non-Unicode Sinhala Font (e.g .Abhaya Font)
3. Press J - what do you see ?
4. Type a sequence of Characters
5. Select the character and change the font to Arial
6. You see all English characters

Issues

- 1.Keyboard Layout
- 2.Keyboard Driver
- 3.Keying Sequence

EXCERCISE-2

1. Open Microsoft Word
2. Select a Unicode Sinhala Font (e.g. IskolaPotha Font)
3. Press J - what do you see ? ට
4. Type sequence of Characters e.g. වයන
5. Select the character and change the font to Arial
6. It will **NOT** change to English, or else you will see a box or question mark

Issues

1.Keyboard

Layout

2.Keyboard

Driver

3.Keying

Sequence

Typeface

Basic design of the character

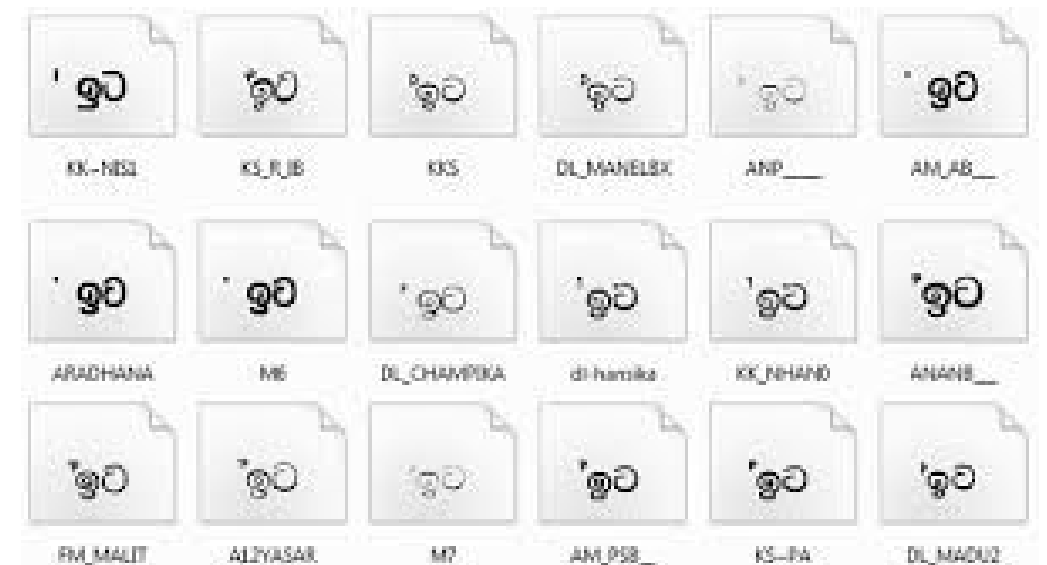
Four different main categories

Serif

San Serif

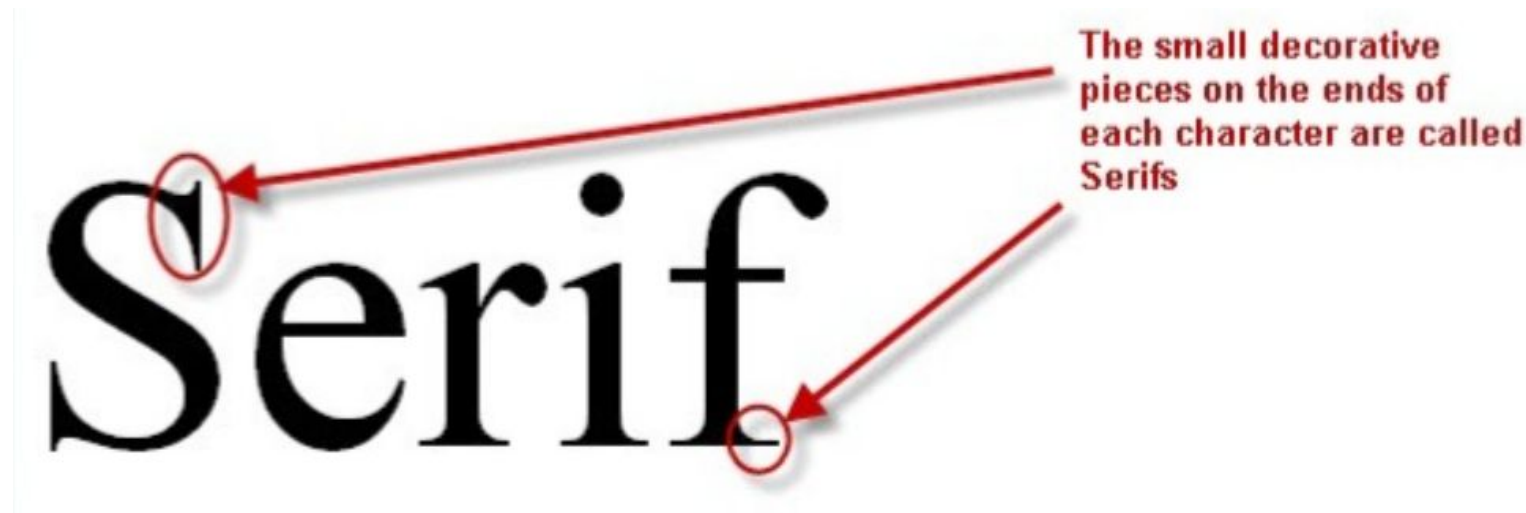
Script

Decorative /
Ornamental



Serif

Have attributes or strokes at the tips of the letter



Used for body text in printed publications

San Serief

Have no attributes or strokes at the tips of the letter



Very large or very small text and for digital display

Decorative / Ornamental

Catch the eyes

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z

Hard to read

Used for decoration

Headlines on flyers and advertisements

Script

Appears to have been written by hand

"I have installed the font and signature. It looks great - Thank you. You have created such a wonderful product, I am sure that I will not only find a million ways to use my font personally, but professionally as well. The quality of your work is impressive, and I appreciate the fact that you communicated with me throughout the whole process. I wish you the best of luck in your business. You can be sure that when people ask me about my personal signature and font I will tell them FONTGOD."

Pauleen Kennedy
Redwood City, CA, USA

Poetry
Announcement
Formal Invitation

Sinhala and Tamil

Category

අ අං අඞ අඞ

Font Style

- Regular
- **Bold**
- *Italic*
- ***Bold Italic***

Font

Is a file with a collection of characters with a specific typeface and style

Font Family

Is a group of font files with a collection of characters with specific typeface and style

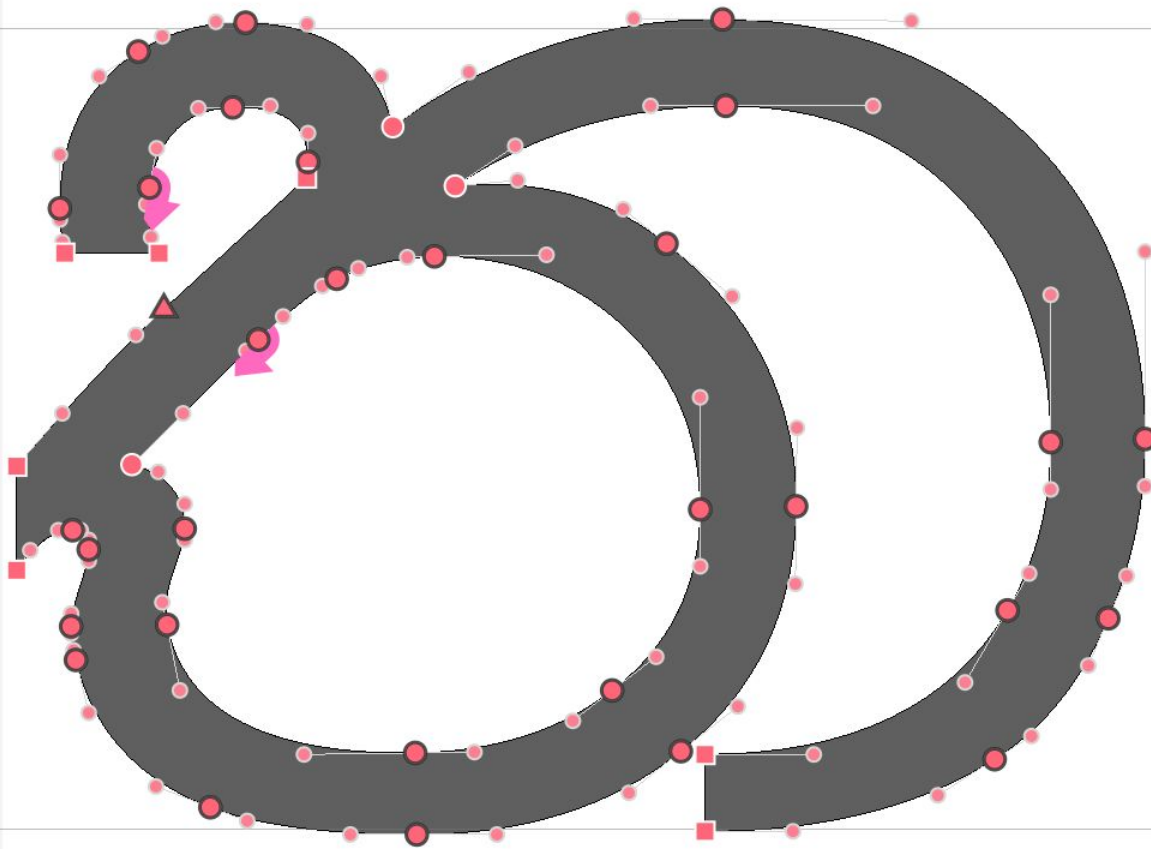
Non - Unicode Font

8 bit font

256 characters

non...return	space	exclam	quotedbl	numbersign	dollar	percent	ampersand	quotesingle	parenleft	parenright	asterisk	plus	comma	hyphen	pe
		ᳵ	,	ᳶ	/	᳷)	.	:	*	᳹	€	©	-	©
six	seven	eight	nine	colon	semicolon	less	equal	greater	question	at	A	B	C	D	
6	7	8	9	ᳺ	᳻	᳼	᳽	᳾	᳿	?	᳠	᳡	᳢	a	
M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	bracketleft	back
ᳺ	᳻	᳼	᳽	᳾	᳿	᳠	᳡	᳢	᳣	᳤	᳥	᳦	'	᳧	᳨
d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	
ᳺ	᳻	᳼	᳽	᳾	᳿	᳠	᳡	᳢	᳣	᳤	᳥	᳦	᳧	᳨	ᳩ
braceleft	bar	braceright	asciitilde	exclamdown	cent	sterling	currency	yen	brokenbar	section	dieresis	copyright	ordfeminine	guillemotleft	logi
ᳺ	᳻	=	᳼	.	᳾	᳿	-	᳠	;	᳢	᳣	᳤	᳥	×	
cedilla	onesuperior	ordm...uline	guill...tright	onequarter	onehalf	three...rters	ques...own	Agrave	Aacute	Acircumflex	Atilde	Adieresis	Aring	AE	Cce
I	V	X	ᳺ	᳻	᳼	᳽	᳾	᳿	᳠	᳡	᳢	᳣	᳤	᳥	᳦
Idieresis	Eth	Ntilde	Ograve	Oacute	Ocircumflex	Otilde	Odieresis	multiply	Oslash	Ugrave	Uacute	Ucircumflex	Udieresis	Yacute	Th
	ᳺ	᳻	᳼	᳽	᳾	᳿	᳠	᳡	᳢	᳣	᳤		᳥	᳦	
ae	ccedilla	egrave	eacute	ecircumflex	edieresis	igrave	iacute	icircumflex	idieresis	eth	ntilde	ograve	oacute	ocircumflex	ot

How font is stored



Glyph

```
<?xml version="1.0" encoding="UTF-8"?>
<glyph name="l" format="1">
  <advance width="768"/>
  <unicode hex="006C"/>
  <outline>
    <contour>
      <point x="197" y="346" type="qcurve" smooth="yes"/>
      <point x="168.0" y="319.0" name="inserted"/>
      <point x="107.0" y="257.0"/>
      <point x="75" y="222" type="qcurve"/>
      <point x="94.0" y="220.0" name="inserted"/>
      <point x="113.0" y="195.0"/>
      <point x="113" y="172" type="qcurve" smooth="yes"/>
      <point x="113.0" y="171.0" name="inserted"/>
      <point x="109.0" y="154.5"/>
      <point x="105" y="139" type="qcurve" smooth="yes"/>
      <point x="103.0" y="131.5" name="inserted"/>
      <point x="101.0" y="118.5"/>
      <point x="101" y="113" type="qcurve" smooth="yes"/>
      <point x="101.0" y="83.5" name="inserted"/>
      <point x="132.5" y="54.0"/>
      <point x="164" y="54" type="qcurve" smooth="yes"/>
      <point x="201" y="54"/>
      <point x="242" y="101"/>
      <point x="242" y="138" type="qcurve" smooth="yes"/>
      <point x="242" y="195" type="line"/>
      <point x="297" y="195" type="line"/>
      <point x="297" y="137" type="line" smooth="yes"/>
      <point x="297.0" y="91.0" name="inserted"/>
      <point x="335.5" y="48.5"/>
      <point x="374" y="52" type="qcurve" smooth="yes"/>
      <point x="394.0" y="54.0" name="inserted"/>
      <point x="425.0" y="76.5"/>
      <point x="436" y="97" type="qcurve" smooth="yes"/>
      <point x="445.5" y="114.5" name="inserted"/>
      <point x="455.0" y="154.0"/>
      <point x="455" y="176" type="qcurve" smooth="yes"/>
      <point x="455" y="247"/>
      <point x="372" y="356"/>
      <point x="304" y="372" type="qcurve" smooth="yes"/>
      <point x="297.5" y="373.5" name="inserted"/>
      <point x="283.0" y="375.0"/>
      <point x="275" y="375" type="qcurve" smooth="yes"/>
      <point x="251.5" y="375.0" name="inserted"/>
      <point x="212.5" y="360.5"/>
    </contour>
  </outline>
</glyph>
```


Non - Unicode Font

O

o + Q

Q



																						Selection to Set	Save Set	(
.notdef	.null	non...return	space	exclam	quotedbl	numbersign	dollar	percent	ampersand	quotesingle	parenleft	parenright	asterisk	plus	comma	hyphen	period	slash	zero	one	two	three		
☐	✎			၅	,	း	/	၂	)	.	:	*	ၵ	₯	၉	-	၈	၄	၀	၁	၂	၃		
four	five	six	seven	eight	nine	colon	semicolon	less	equal	greater	question	at	A	B	C	D	E	F	G	H	I	J		
၄	၅	၆	၇	၈	၉	၀	၁	၂	၃	၄	၅	၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇		
K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	bracketleft	backslash	bracketright	asciicircum	underscore	grave	a		
၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇	၈	၉	၁		
b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x		
၉	၁	၂	၃	၄	၅	၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇	၈	၉	၁	၂	၃	၄		
y	z	braceleft	bar	braceright	asciitilde	exclamdown	cent	sterling	currency	yen	brokenbar	section	dieresis	copyright	ordfeminine	guillemotleft	logicalnot	registered	degree	plusminus	twosuperior	three...erior		
၁	၂	၃	၄	=	၆	.	၈	၉	-	၁	;	၃	၄	၅	၆	×	+			၈	၉	★		
acute	paragraph	cedilla	onesuperior	ordm...uline	guill...tright	onequarter	onehalf	three...rters	ques...own	Agrave	Aacute	Acircumflex	Atilde	Adieresis	Aring	AE	Ccedilla	Egrave	Eacute	Ecircumflex	Edieresis	Igrave		
၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇	၈	၉			
lacute	lcircumflex	ldieresis	Eth	Ntilde	Ograve	Oacute	Ocircumflex	Otilde	Odieresis	multiply	Oslash	Ugrave	Uacute	Ucircumflex	Udieresis	Yacute	Thorn	germandbls	agrave	aacute	acircumflex	atilde		
၁	၂		၃	၄	၅	၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇	၈	၉	၁	၂	၃	၄		
adieresis	aring	ae	ccedilla	egrave	eacute	ecircumflex	edieresis	igrave	iacute	icircumflex	idieresis	eth	ntilde	ograve	oacute	ocircumflex	otilde	odieresis	divide	oslash	ugrave	uacute		
၁	၂	!	၃	၄	၅	၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇	၈	၉	၁	၂	၃	၄		
ucircumflex	udieresis	yacute	thorn	ydieresis	dotlessi	OE	oe	Scaron	scaron	Ydieresis	florin	circumflex	caron	macron	breve	ring	ogonek	tilde	hung...laut	Omega	mu	pi		

Non - Unicode Font



o + Q = yen



Keyboard driver

o Q

																						Selection to Set	Save Set	(
.notdef	.null	non...return	space	exclam	quotedbl	numbersign	dollar	percent	ampersand	quotesingle	parenleft	parenright	asterisk	plus	comma	hyphen	period	slash	zero	one	two	three		
□				၅	,	း	/	၂	)	.	:	*	ၵ	ε	၉	-	၆	၇	၀	၁	၂	၃		
four	five	six	seven	eight	nine	colon	semicolon	less	equal	greater	question	at	A	B	C	D	E	F	G	H	I	J		
4	5	6	7	8	9	၀	၁	၂	၃	၄	၅	၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇		
K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	bracketleft	backslash	bracketright	asciicircum	underscore	grave	a		
၅	၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇	၈	၉	၁	၂	'	၉	၁	%	(	၁	၂		
b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x		
၅	၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇	၈	၉	၁	၂	၃	၄	၅	၆	၇	၈	၉		
y	z	braceleft	bar	braceright	asciitilde	exclamdown	cent	sterling	currency	yen	brokenbar	section	dieresis	copyright	ordfeminine	guillemotleft	logicalnot	registered	degree	plusminus	twosuperior	three...erior		
၅	'	၉	၁	=	၁	.	၉	၉	-	၉	;	၉	၉	၉	၉	×	+			၉	●	★		
acute	paragraph	cedilla	onesuperior	ordm...uline	guill...tright	onequarter	onehalf	three...rters	ques...own	Agrave	Aacute	Acircumflex	Atilde	Adieresis	Aring	AE	Ccedilla	Egrave	Eacute	Ecircumflex	Edieresis	Igrave		
၉	V	I	V	X		ρ	ς	၀	၁	၁	၁	၁	▲	၁	၁	၉	၁	၉	၁	၁	၁			
lacute	Icircumflex	Idieresis	Eth	Ntilde	Ograve	Oacute	Ocircumflex	Otilde	Odieresis	multiply	Oslash	Ugrave	Uacute	Ucircumflex	Udieresis	Yacute	Thorn	germandbls	agrave	aacute	acircumflex	atilde		
၀	၁		၁	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁		၁	၁	၁	၁	၁	၁	၁	၁		
adieresis	aring	ae	ccedilla	egrave	eacute	ecircumflex	edieresis	igrave	iacute	icircumflex	idieresis	eth	ntilde	ograve	oacute	ocircumflex	otilde	odieresis	divide	oslash	ugrave	uacute		
၁	၁	!	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁	၁		
ucircumflex	udieresis	yacute	thorn	ydieresis	dotlessi	OE	oe	Scaron	scaron	Ydieresis	florin	circumflex	caron	macron	breve	ring	ogonek	tilde	hung...laut	Omega	mu	pi		

Every font has different layouts

.notdef	.null	non...return	space	colon	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
				කම	ඩි	චි	ඪි	ඒ	ඟ්	ග්	න්	ර්	ජ්	ක්	ල්	මි	න්	ඞි	ජ්	ඳ්	ර්	ස්
T	U	V	W	X	Y	Z	bracketleft	backslash	bracketright	asciicircum	underscore	grave	a	b	c	d	e	f	g	h	i	j
ටි	ඵ	චි	ත්	භ	ය්	ණ්	ධ	ඟ	ඳ	ෘ	ඟ	)	ආ	ඞ	ච	ඪ	ච	ෆ	ග	භ	ඉ	ජ්
k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	bar	braceright	asciitilde	exclamdown	cent	sterling	currency
ක	ල	ම	න	ඞ	ප	ඳ	ර	ස	ට	උ	ච	ත	ඞ	ය	ණ	ග්	ට්	ෆ්	ඩි	ඩි	ඞ	ඞ
yen	brokenbar	section	dieresis	copyright	ordfeminine	guillemotleft	logicalnot	softhyphen	registered	macron	degree	plusminus	twosuperior	three...erior	acute	mu	paragraph	dotoperator	cedilla	onesuperior	ordm...uline	guill...tright
ඞ	චි	චි	චු	ඞ	ණි	ඩි	ඩි	ඞ	ඞ	ඞ	ඞ	ඞ	ග	ග	ග	ඞ	ඞ	□	ඞ	ණි	ජි	ජි
onequarter	onehalf	three...rters	ques...own	Agrave	Aacute	Acircumflex	Atilde	Adieresis	Aring	AE	Ccedilla	Egrave	Eacute	Ecircumflex	Edieresis	Igrave	Iacute	Icircumflex	Idieresis	Eth	Ntilde	Ograve
ඞ	ඞ	ඞ	කි	කි	කු	කු	කු	ලි	ලි	ලු	ලු	ණු	මි	මි	මු	මු	ණු	නි	නි	නු	නු	නු
Oacute	Ocircumflex	Otilde	Odieresis	multiply	Oslash	Ugrave	Uacute	Ucircumflex	Udieresis	Yacute	Thorn	germandbls	agrave	aacute	acircumflex	atilde	adieresis	aring	ae	ccedilla	egrave	eacute
ඞ	ඞ	ඞ	ඞ	ඞ	ඳි	ඳි	ඳ	ඳ	ඳ	රි	රි	රූ	රූ	කි	සි	සි	සු	සු	කි	ටි	ටි	ඞ
ecircumflex	edieresis	igrave	iacute	icircumflex	idieresis	eth	ntilde	ograve	oacute	ocircumflex	otilde	odieresis	divide	oslash	ugrave	uacute	ucircumflex	udieresis	yacute	thorn	ydieresis	ampersand

Selection to Set																						Save Set
.notdef	.null	non...return	space	exclam	quotedbl	numbersign	dollar	percent	ampersand	quotesingle	parenleft	parenright	asterisk	plus	comma	hyphen	period	slash	zero	one	two	three
				ඟ	,	:	/	ූ	)	.	:	*	ෆ	ූ	ල	-	ග	රූ	0	1	2	3
four	five	six	seven	eight	nine	colon	semicolon	less	equal	greater	question	at	A	B	C	D	E	F	G	H	I	J
4	5	6	7	8	9	ට්	ත	ඳ	ූ	ස	රූ	?	ෆ	ර්	ක	ෘ	ූ	ඞ	ෆ	ඞ	ඞ	ඞ
K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	bracketleft	backslash	bracketright	asciicircum	underscore	grave	a
ණ	ඞ	ච	භ	ධ	ජ	ූ	සෘ	ූ	ඞ	ඞ	ඩ	උ	ඩ	ග	'	ඞ	ඳ	%	(	ූ	(	ෆ
b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x
ඉ	ජ	ූ	ූ	ඞ	ට	ය	ස	ච	න	ක	ප	ඞ	ඳ	ච	ූ	ර	ූ	ච	ම	ඩ	ආ	ූ
y	z	braceleft	bar	braceright	asciitilde	exclamdown	cent	sterling	currency	yen	brokenbar	section	dieresis	copyright	ordfeminine	guillemotleft	logicalnot	registered	degree	plusminus	twosuperior	three...erior
භ	'	ඞ	ඳ	=	ඞ	.	ඳි	ඳි	-	ඳ	;	ඳි	ලු	ඳි	ඳ	×	+			ඳ	●	★
acute	paragraph	cedilla	onesuperior	ordm...uline	guill...tright	onequarter	onehalf	three...rters	ques...own	Agrave	Aacute	Acircumflex	Atilde	Adieresis	Aring	AE	Ccedilla	Egrave	Eacute	Ecircumflex	Edieresis	Igrave
ඞ	v	I	V	X	ඞ	p	s	ර්	ච	ඩි	ඩි	ඞ	▲	ඩි	ඩි	ලු	ඩි	ඳ	ච	ජ්	කම	
Iacute	Icircumflex	Idieresis	Eth	Ntilde	Ograve	Oacute	Ocircumflex	Otilde	Odieresis	multiply	Oslash	Ugrave	Uacute	Ucircumflex	Udieresis	Yacute	Thorn	germandbls	agrave	aacute	acircumflex	atilde
ර්	ඩි		ඩි	ච	ට්	ට්	ඞ	ඟ	ච	ඞ	ඞ	ඩ	ච		ට්	ච	ඳ	ර්	ට්	ට්	ඩ	ඩ
adieresis	aring	ae	ccedilla	egrave	eacute	ecircumflex	edieresis	igrave	iacute	icircumflex	idieresis	eth	ntilde	ograve	oacute	ocircumflex	otilde	odieresis	divide	oslash	ugrave	uacute
ඞ	ඞ	ූ	ඞ	ඞ	ඞ	ඞ	ඞ	ඞ	ඞ	ඞ	ඞ	රූ	ඞ	ඞ	ඞ	ඞ	ඞ	ඞ	ූ	ූ	ඞ	ඞ

asdfghjkl

අසඩඟගහජකල

ආලෝකවහන

Unicode Font

$$256 * 256 = 65536$$

Every base character is given a number called a
Unicode code point

SLS 1134 : 2004

SLS 1134 : 2004

	0D8x	0D9x	0DAx	0DBx	0DCx	0DDx	0DEx	0DFx
0		ආ	ච	ඳ	ඳ	ඳ		
		0D90	0DA0	0DB0	0DC0	0DD0		
1		ඵ	ඡ	න	ඟ	ඳ		
		0D91	0DA1	0DB1	0DC1	0DD1		
2	ං	ඵ	ඡ		ඡ	ඵ		aa
	0D82	0D92	0DA2		0DC2	0DD2		0DF2
3	ඃ	ඵ	ඡ	ඳ	ඳ	ඵ		භ
	0D83	0D93	0DA3	0DB3	0DC3	0DD3		0DF3
4		ඹ	ඳ	ඵ	භ	ඵ		ඹ
		0D94	0DA4	0DB4	0DC4	0DD4		0DF4
5	ඵ	ඹ	ඡ	ඵ	ඵ			
	0D85	0D95	0DA5	0DB5	0DC5			
6	ආ	ඹ	ඡ	ඳ	ඵ	ඵ		
	0D86	0D96	0DA6	0DB6	0DC6	0DD6		
7	ආ		ඵ	භ				
	0D87		0DA7	0DB7				
8	ආ		ඵ	ඵ		a		
	0D88		0DA8	0DB8		0DD8		
9	ආ		ඵ	ඹ		ඵ		
	0D89		0DA9	0DB9		0DD9		
A	ඵ	ඡ	ඵ	ඵ	ඵ	ඵ		
	0D8A	0D9A	0DAA	0DBA	0DCA	0DDA		
B	ඵ	ඵ	ඡ	ඵ		ඵ		
	0D8B	0D9B	0DAB	0DBB		0ddb		
C	ඵ	ඵ	ඵ			ඵ		
	0D8C	0D9C	0DAC			0DDC		
D	ඵ	ඵ	ඡ	ඵ		ඵ		
	0D8D	0D9D	0DAD	0DBD		0DDD		
E	ඵ	ඵ	ඵ			ඵ		
	0D8E	0D9E	0DAE			0DDE		
F	ඵ	ඵ	ඵ		ඵ	ඵ		
	0D8F	0D9F	0DAF		0DCF	0DDF		

FIGURE 1 – The Sinhala Character Encoding

	0D8x	0D9x	0DAx	0DBx	0DCx	0DDx	0DEx	0DFx
0		ආ	ච	ඳ	ඳ	ඳ		
		0D90	0DA0	0DB0	0DC0	0DD0		
1		ඵ	ඡ	න	ඟ	ඳ		
		0D91	0DA1	0DB1	0DC1	0DD1		
2	ං	ඵ	ඡ		ඡ	ඵ		aa
	0D82	0D92	0DA2		0DC2	0DD2		0DF2
3	ඃ	ඵ	ඡ	ඳ	ඳ	ඵ		භ
	0D83	0D93	0DA3	0DB3	0DC3	0DD3		0DF3
4		ඹ	ඳ	ඵ	භ	ඵ		ඹ
		0D94	0DA4	0DB4	0DC4	0DD4		0DF4
5	ඵ	ඹ	ඡ	ඵ	ඵ			
	0D85	0D95	0DA5	0DB5	0DC5			
6	ආ	ඹ	ඡ	ඳ	ඵ	ඵ		
	0D86	0D96	0DA6	0DB6	0DC6	0DD6		

	0B8	0B9	0BA	0BB	0BC	0BD	0BE	0BF
0		ஐ 0B90		ர 0BB0	ீ 0BC0	ஐ 0BD0		ஓ 0BF0
1				ற 0BB1	ீ 0BC1			ஈ 0BF1
2	ஃ 0B82	ஓ 0B92		ல 0BB2	ஃ 0BC2			ஔ 0BF2
3	ஃ 0B83	ஓ 0B93	ண 0BA3	ள 0BB3				உ 0BF3
4		ஒள 0B94	த 0BA4	ழ 0BB4				மீ 0BF4
5	அ 0B85	க 0B95		வ 0BB5				ஶ 0BF5
6	ஆ 0B86			ஸ 0BB6	ெ 0BC6		ஓ 0BE6	யு 0BF6
7	இ 0B87			ஷ 0BB7	ே 0BC7	ள 0BD7	க 0BE7	ஶ 0BF7
8	ஈ 0B88		ந 0BA8	ஸ 0BB8	ை 0BC8		உ 0BE8	ஔ 0BF8
9	உ 0B89	ங 0B99	ன 0BA9	ஹ 0BB9			ந 0BE9	ஶ 0BF9
A	ஊ 0B8A	ச 0B9A	ப 0BAA		ொ 0BCA		ச 0BEA	நீ 0BFA
B					ோ 0BCB		ரு 0BEB	
C		ஐ 0B9C			ெள 0BCC		க 0BEC	
D					ஃ 0BCD		எ 0BED	
E	எ 0B8E	ஞ 0B9E	ம 0BAE	ா 0BBE			அ 0BEE	
F	ஏ 0B8F	ழ 0B9F	ய 0BAF	ி 0BBF			சு 0BEF	

FIGURE 1 - Tamil Character Encoding

	0B8	0B9	0BA	0BB	0BC	0BD	0BE	0BF
0		ஐ 0B90		ர 0BB0	ீ 0BC0	ஐ 0BD0		ஓ 0BF0
1				ற 0BB1	ீ 0BC1			ஈ 0BF1
2	ஃ 0B82	ஓ 0B92		ல 0BB2	ஃ 0BC2			ஔ 0BF2
3	ஃ 0B83	ஓ 0B93	ண 0BA3	ள 0BB3				உ 0BF3
4		ஒள 0B94	த 0BA4	ழ 0BB4				மீ 0BF4
5	அ 0B85	க 0B95		வ 0BB5				ஶ 0BF5
6	ஆ 0B86			ஸ 0BB6	ெ 0BC6		ஓ 0BE6	யு 0BF6
7	இ 0B87			ஷ 0BB7	ே 0BC7	ள 0BD7	க 0BE7	ஶ 0BF7
8	ஈ 0B88		ந 0BA8	ஸ 0BB8	ை 0BC8		உ 0BE8	ஔ 0BF8
9	உ 0B89	ங 0B99	ன 0BA9	ஹ 0BB9			ந 0BE9	ஶ 0BF9
A	ஊ 0B8A	ச 0B9A	ப 0BAA		ொ 0BCA		ச 0BEA	நீ 0BFA
B					ோ 0BCB		ரு 0BEB	
C		ஐ 0B9C			ெள 0BCC		க 0BEC	
D					ஃ 0BCD		எ 0BED	

0d9A

3482

0dd4

3540

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Substitution
Font Rule

0d9A

	.notdef	500	62	63		2	0
	space	370			0020	0	0
!	exclam	326	90	97	0021	2	0
"	quotedbl	510	94	93	0022	2	0
#	numbersign	563	51	-12	0023	2	0
\$	dollar	563	52	58	0024	3	0
%	percent	828	44	45	0025	5	0
&	ampersand	800	47	11	0026	3	0
'	quoteright	300	94	94	2019	1	0
(	parenleft	380	71	23	0028	1	0
)	parenright	380	24	69	0029	1	0
*	asterisk	508	41.00	92.19	002A	6	0
+	plus	492	36	36	002B	1	0
,	comma	275	52	46	002C	1	0
-	hyphen	404	36	35	002D	1	0
@	at	969	41	41	0040	2	0
A	A	714	0	12	0041	2	0
B	B	660	24	65	0042	3	0
C	C	644	41	47	0043	1	0
D	D	711	24	52	0044	2	0
E	E	595	29	36	0045	1	0
F	F	574	29	49	0046	1	0
G	G	700	41	29	0047	1	0
H	H	785	29	41	0048	1	0
I	I	357	41	52	0049	1	0
J	J	366	-111	41	004A	1	0
K	K	694	29	6	004B	2	0
L	L	571	29	18	004C	1	0
M	M	967	35	47	004D	1	0
N	N	779	29	29	004E	1	0
O	O	720	41	53	004F	2	0
P	P	627	24	52	0050	1	0
Q	Q	720	41	-31	0051	2	0
R	R	673	24	6	0052	2	0
S	S	571	68	52	0053	1	0
T	T	661	6	26	0054	1	0
U	U	785	29	38	0055	1	0
V	V	780	12	24	0056	1	0
W	W	1020	12	23	0057	1	0
X	X	738	18	18	0058	1	0
Y	Y	713	0	24	0059	1	0
Z	Z	627	35	46	005A	1	0
[	bracketleft	370	82	24	005B	1	0
\	bracketright	500	82	23	005C	1	0

◦	uni0D82	424	32	33	0D82	2	0
◌	uni0D83	269	32	18	0D83	4	0
ꠤ	uni0D85	587	31.73	24.68	0D85	3	0
ꠥ	uni0D86	854	31.73	27.30	0D86	4	0
ꠦ	uni0D87	826	31.73	2.62	0D87	4	0
ꠧ	uni0D88	837	31.73	3.79	0D88	4	0
꠨	uni0D89	608	31.95	40.29	0D89	2	0
꠩	uni0D8A	714	34.17	14	0D8A	6	0
꠪	uni0D8B	626	31.88	4.34	0D8B	1	0
꠫	uni0D8C	952	31.82	21.88	0D8C	2	0
꠬	uni0D8D	1046	22.13	21.39	0D8D	3	0
꠭	uni0D8E	1375	20.18	15.43	0D8E	5	0
꠮	sin.k	891	50.02	17.90		3	0
꠯	sin.ki	865	31.68	35.65		3	0
꠺	sin.kii	862	29.65	35.51		4	0
꠻	sin.ku	856	17.68	13.22		2	0
꠼	sin.kuu	855	21.68	-11.59		2	0
꠽	sin.ke	1340	30	36.81		4	0
꠾	sin.kee	1346	30	7.79		5	0
꠿	sin.kai	1821	35	36.81		6	0
ꡀ	sin.ko	1585	30	30.92		5	0
ꡁ	sin.koo	1594	30	-25.21		6	0
ꡂ	sin.kau	1705	30	46.76		5	0
ꡃ	sin.kra	865	26.68	40.50		2	0
ꡄ	sin.kri	862	22.68	42.35		3	0
ꡅ	sin.krii	862	26.65	39.32		4	0
ꡆ	sin.kre	1345	30	43.50		4	0
ꡇ	sin.kree	1335	30	10.79		5	0
ꡈ	sin.krai	1825	30	36.50		6	0
ꡉ	sin.kro	1588	30	35.92		5	0
ꡊ	sin.kroo	1601	30	-12.21		6	0
ꡋ	sin.krau	1672	30	37.76		5	0
ꡌ	sin.kya	1301	40.65	30.38		3	0
ꡍ	sin.kyu	1296	27.65	44.23		3	0

තොරතුරු තාක්ෂණ යටිතල පහසුකම් ද අවස්ථාවන්ද සලසන්නාවූ පරිසරයක් ගොඩනැංවීම, ICTA මානව සම්පත් දියුණු කිරීම, පාලනය පුරවැසි සේවාවන් යථාවත් බවට පත් කිරීම, සමාජ ආර්ථික වර්ධනය තොරතුරු තාක්ෂණය ලිවරයක් ලෙස යොදාගැනීම සහ ලංකාව තොරතුරු තාක්ෂණ තෝරාගන්නක් බවට අභිවර්ධනය කිරීම ආවරණය කිරීම ICTA මගින් කරනු ලැබේ. මෙම ජාතික ICT මාර්ග සිතියම අනුගමනය කිරීමේදී සෑම වැඩසටහන් වලම හවුල්කරුවන් යොමු කණ්ඩායම් බිහිකර යොදා ගැනීම අප විසින් කරනු ලැබේ.

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f l d a ເພື່ອ

කි‍්‍රයේ ආදායම කි‍්‍රයේ

l f d a

~ `	! 1	@ 2	# 3	\$ 4	% 5	^ 6	& 7	* 8	(9) 0	- _	+ =	Bk Spc	
Tab	Q q	W w	E e	R r	T t	Y y	U u	I i	O o	P p	{ [}]	: ;	 \ ~
Lock	A a	S s	D d	F f	G g	H h	J j	K k	L l	: ;	' "	,	Enter	
Shift	Z z	X x	C c	V v	B b	N n	M m	< , C	> . G	/	?	Shift		
Space														

Unicode Fonts

Glyphs

Rules

You yet need a driver and Layout

To type in unicode

Unicode font with rules

Keyboard Layout

Keyboard Driver

OS Rendering Engine

Font

Keyboard
Layout

Keyboard
Driver

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Files

OpenType Tables

Font Rules

Windows, Linux

Rendering Engine

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Mac

Font Rules

AAT Tables



Supports Sinhala Unicode:

Windows XP Service Pack 2 to Windows 8

Linux

Mac OS X

Android

iOS

Font Tools

Fontlab

Fontographer

FontForge

RoboFont

Create Rules you need
MS Volt Tool

Publishing Software

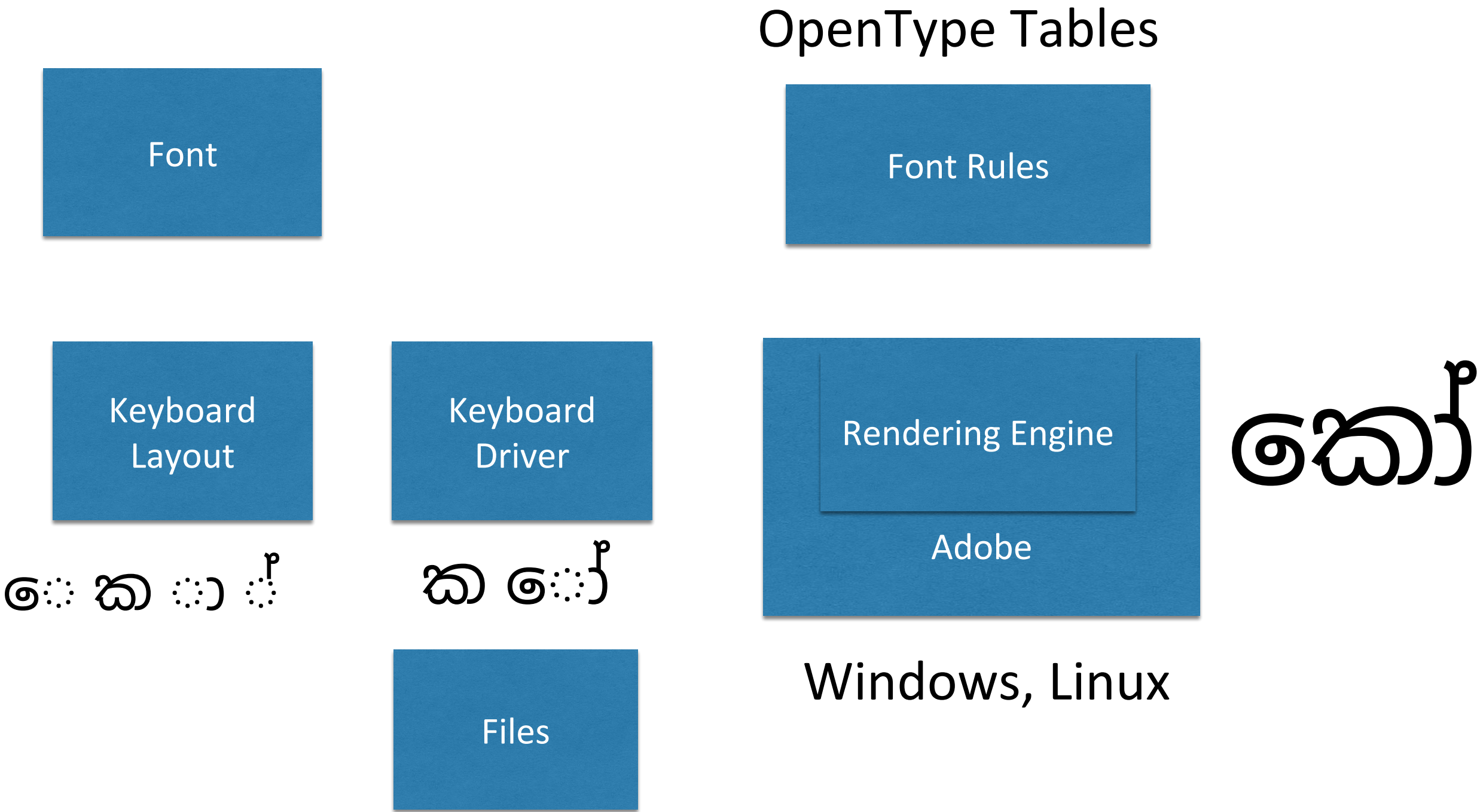
Did not support Unicode

Not enough Unicode fonts

Therefore started using Non-Unicode font

Adobe Indesign , Quark Express, Corel Draw

Adobe Suite has its rendering engine embedded



Rakaransaya, Yanse, Rephaya

ක	ථ	ඡ	උ	කු
0d9a	0dca	200d	0dbb	

ක	ථ	ඡ	ඌ	කඨ
0d9a	0dca	200d	0dba	

උ	ථ	ඡ	ක	කී
0dbb	0dca	200d	0d9a	

Tamil Ksha

க ு ஷ சுஷ

க ு | ஷ க்ஷ

From CS 5.5 it supports
OpenType for indic script

How about other Adobe Products ?

Photoshop, Illustrator
etc.....

Solution

We created a font with rules which Adobe can read

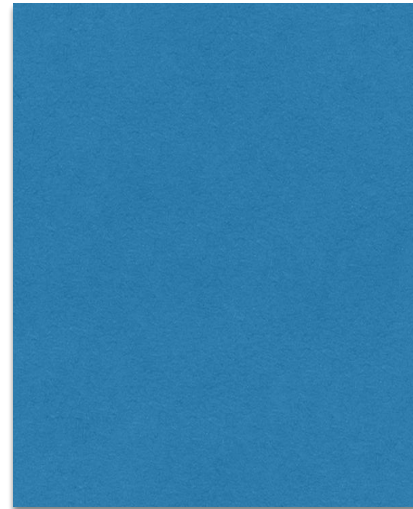
DEMO

Question 1

கேள்

து

Application



கேள்

கேள்
து

To type in Unicode

Font

Keyboard Layout

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Keyboard Driver

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Files

OpenType Tables

Font Rules

Windows, Linux

Rendering Engine

කොට

Mac

Font Rules

AAT Tables

END