CPSC 100

Computational Thinking

Data Representation

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Course Admin

Learning Goals

After this **today's lecture**, you should be able to:

- Explain what **ASCII** and **Unicode** are, including their historical context, purpose, and significance in computing.
- **Decode** an **ASCII** representation of a short text document
  - (with a list of ASCII codes provided)
- Articulate **why Unicode was created** and how it solved the problems of earlier encoding systems like ASCII
- **Compare and contrast Unicode with ASCII** in terms of character range, encoding length, and use cases

Learning Goals

Q: Which colour best describes the one represented by the hexadecimal colour code: #32CD32?

iClicker

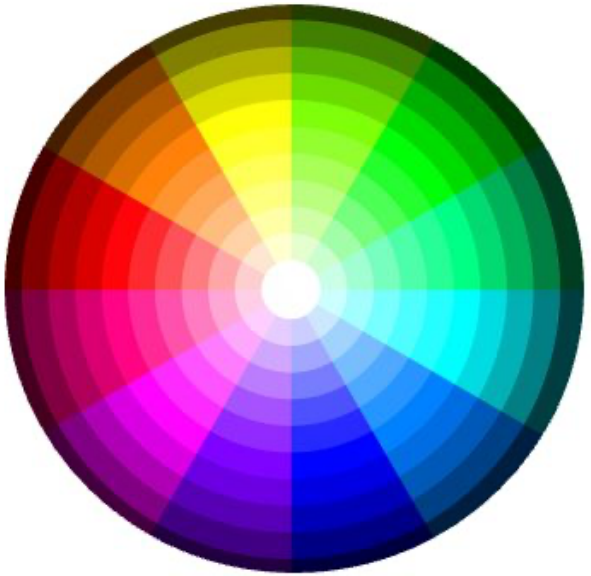
A. Shade of red

B. Shade of blue

C. Shade of green

D. Shade of purple

E. Shade of yellow



Q: Which colour best describes the one represented by the hexadecimal colour code: #800B80?

iClicker

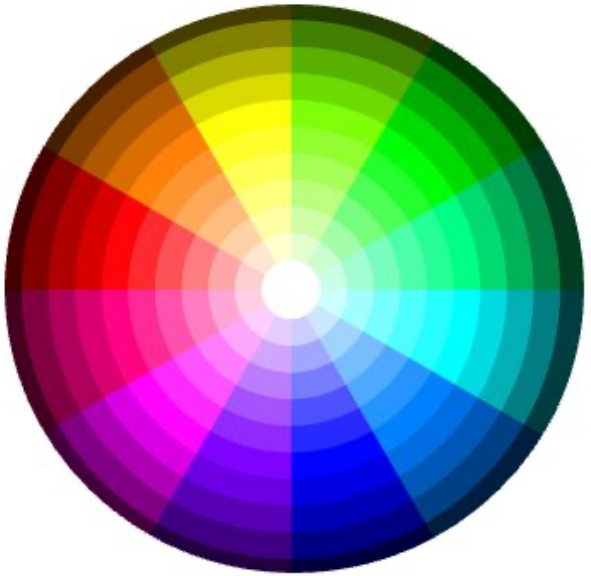
A. Shade of red

B. Shade of blue

C. Shade of green

D. Shade of purple

E. Shade of yellow



Activity

Color Mixing: Match the Colour to its Hex Rep.

Hex. Rep.	shade of …
#FFA933	Yellow
#FF99FF	Pink or Magenta
#EAE51D	Blue
#A1A2A3	Orange
#1234F8	Grey

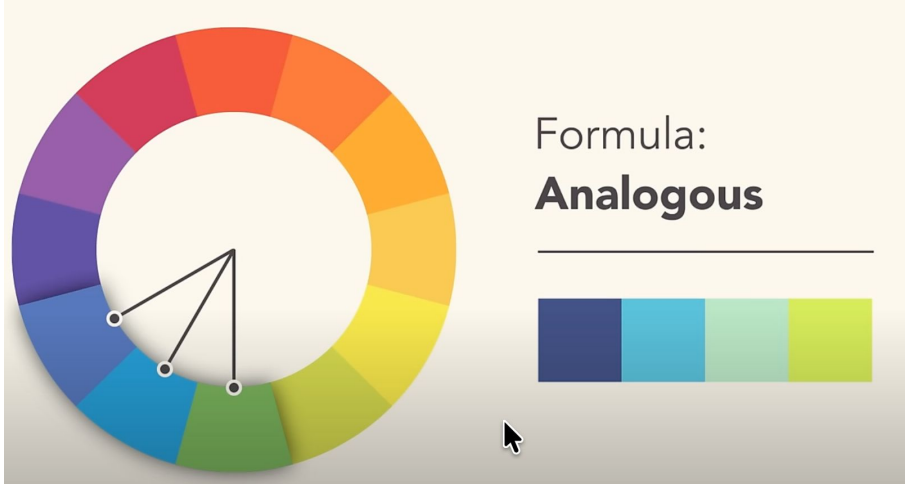
Optional Video about Colours

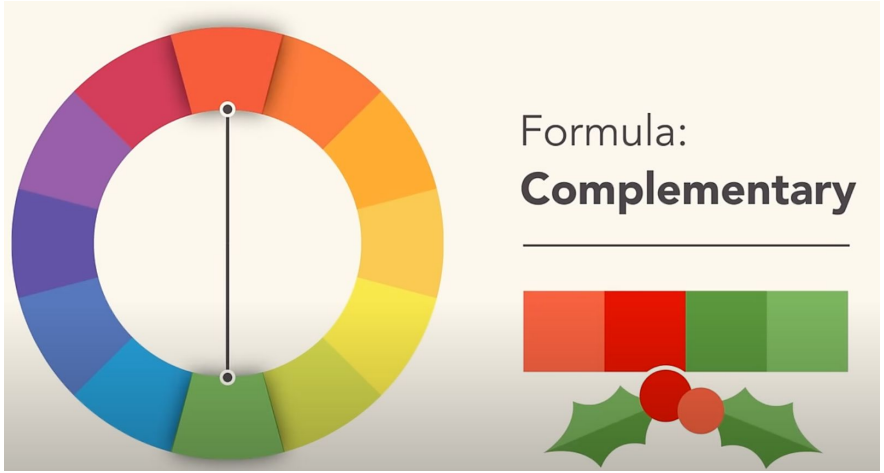
Colour Theory

https://youtu.be/_2LLXnUdUlc?si=ZC0gCVCkhlmnc3KT

Colour Theory

https://youtu.be/_2LLXnUdUlc?si=ZC0gCVCkhlmnc3KT





Data Representation in characters!

How do computer store letters and characters?

ASCII: Overview

American **S**tandard **C**ode for **I**nformation **I**nterchange (ASCII)

- Character encoding standard
- Allows computers and electronic devices to represent text
- Developed in 1960s
  - Standardize how computers represent characters

ASCII Table

Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char
0	0	[NULL]	32	20	[SPACE]	64	40	@	96	60	`
1	1	[START OF HEADING]	33	21	!	65	41	A	97	61	a
2	2	[START OF TEXT]	34	22	"	66	42	B	98	62	b
3	3	[END OF TEXT]	35	23	#	67	43	C	99	63	c
4	4	[END OF TRANSMISSION]	36	24	$	68	44	D	100	64	d
5	5	[ENQUIRY]	37	25	%	69	45	E	101	65	e
6	6	[ACKNOWLEDGE]	38	26	&	70	46	F	102	66	f
7	7	[BELL]	39	27	'	71	47	G	103	67	g
8	8	[BACKSPACE]	40	28	(	72	48	H	104	68	h
9	9	[HORIZONTAL TAB]	41	29	)	73	49	I	105	69	i
10	A	[LINE FEED]	42	2A	*	74	4A	J	106	6A	j
11	B	[VERTICAL TAB]	43	2B	+	75	4B	K	107	6B	k
12	C	[FORM FEED]	44	2C	,	76	4C	L	108	6C	l
13	D	[CARRIAGE RETURN]	45	2D	-	77	4D	M	109	6D	m
14	E	[SHIFT OUT]	46	2E	.	78	4E	N	110	6E	n
15	F	[SHIFT IN]	47	2F	/	79	4F	O	111	6F	o
16	10	[DATA LINK ESCAPE]	48	30	0	80	50	P	112	70	p
17	11	[DEVICE CONTROL 1]	49	31	1	81	51	Q	113	71	q
18	12	[DEVICE CONTROL 2]	50	32	2	82	52	R	114	72	r
19	13	[DEVICE CONTROL 3]	51	33	3	83	53	S	115	73	s
20	14	[DEVICE CONTROL 4]	52	34	4	84	54	T	116	74	t
21	15	[NEGATIVE ACKNOWLEDGE]	53	35	5	85	55	U	117	75	u
22	16	[SYNCHRONOUS IDLE]	54	36	6	86	56	V	118	76	v
23	17	[ENG OF TRANS. BLOCK]	55	37	7	87	57	W	119	77	w
24	18	[CANCEL]	56	38	8	88	58	X	120	78	x
25	19	[END OF MEDIUM]	57	39	9	89	59	Y	121	79	y
26	1A	[SUBSTITUTE]	58	3A	:	90	5A	Z	122	7A	z
27	1B	[ESCAPE]	59	3B	;	91	5B	[	123	7B	{
28	1C	[FILE SEPARATOR]	60	3C	<	92	5C	\	124	7C	|
29	1D	[GROUP SEPARATOR]	61	3D	=	93	5D	]	125	7D	}
30	1E	[RECORD SEPARATOR]	62	3E	>	94	5E	^	126	7E	~
31	1F	[UNIT SEPARATOR]	63	3F	?	95	5F	_	127	7F	[DEL]

ASCII: Overview

- Punctuation, spaces and other special control characters are also encoded
  - each encoded item is sometimes called a **code point**
- ASCII uses **7 bits** to represent each character, which allows for 128 (2^7) unique characters (from 0 to 127)
  - **Why 7 bits?**
  - An extra “check” bit to detect certain errors that might arise
- *Extended* ASCII uses **8 bits** (or one byte), allowing for characters with accents (Á, ë and others)

ASCII: Overview

ASCII uses **7 bits** to represent each character:

- **Control characters** (0–31): For managing hardware (like line breaks or bell sounds).
- **Printable characters** (32–126): Letters, digits, punctuation, and symbols.
- **Delete character** (127).

ASCII: Control characters (0-31)

Decimal	Hex	Char
0	0	[NULL]
1	1	[START OF HEADING]
2	2	[START OF TEXT]
3	3	[END OF TEXT]
4	4	[END OF TRANSMISSION]
5	5	[ENQUIRY]
6	6	[ACKNOWLEDGE]
7	7	[BELL]
8	8	[BACKSPACE]
9	9	[HORIZONTAL TAB]
10	A	[LINE FEED]
11	B	[VERTICAL TAB]
12	C	[FORM FEED]
13	D	[CARRIAGE RETURN]
14	E	[SHIFT OUT]
15	F	[SHIFT IN]
16	10	[DATA LINK ESCAPE]
17	11	[DEVICE CONTROL 1]
18	12	[DEVICE CONTROL 2]
19	13	[DEVICE CONTROL 3]
20	14	[DEVICE CONTROL 4]
21	15	[NEGATIVE ACKNOWLEDGE]
22	16	[SYNCHRONOUS IDLE]
23	17	[ENG OF TRANS. BLOCK]
24	18	[CANCEL]
25	19	[END OF MEDIUM]
26	1A	[SUBSTITUTE]
27	1B	[ESCAPE]
28	1C	[FILE SEPARATOR]
29	1D	[GROUP SEPARATOR]
30	1E	[RECORD SEPARATOR]
31	1F	[UNIT SEPARATOR]

Decimal	Hex	Char
32	20	[SPACE]
33	21	!
34	22	"
35	23	#
36	24	$
37	25	%
38	26	&
39	27	'
40	28	(
41	29	)
42	2A	*
43	2B	+
44	2C	,
45	2D	-
46	2E	.
47	2F	/
48	30	0
49	31	1
50	32	2
51	33	3
52	34	4
53	35	5
54	36	6
55	37	7
56	38	8
57	39	9
58	3A	:
59	3B	;
60	3C	<
61	3D	=
62	3E	>
63	3F	?

Decimal	Hex	Char
64	40	@
65	41	A
66	42	B
67	43	C
68	44	D
69	45	E
70	46	F
71	47	G
72	48	H
73	49	I
74	4A	J
75	4B	K
76	4C	L
77	4D	M
78	4E	N
79	4F	O
80	50	P
81	51	Q
82	52	R
83	53	S
84	54	T
85	55	U
86	56	V
87	57	W
88	58	X
89	59	Y
90	5A	Z
91	5B	[
92	5C	\
93	5D	]
94	5E	^
95	5F	_

Decimal	Hex	Char
96	60	`
97	61	a
98	62	b
99	63	c
100	64	d
101	65	e
102	66	f
103	67	g
104	68	h
105	69	i
106	6A	j
107	6B	k
108	6C	l
109	6D	m
110	6E	n
111	6F	o
112	70	p
113	71	q
114	72	r
115	73	s
116	74	t
117	75	u
118	76	v
119	77	w
120	78	x
121	79	y
122	7A	z
123	7B	{
124	7C	|
125	7D	}
126	7E	~
127	7F	[DEL]

ASCII: Printable characters (32-126)

Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char
0	0	[NULL]	32	20	[SPACE]	64	40	@	96	60	`
1	1	[START OF HEADING]	33	21	!	65	41	A	97	61	a
2	2	[START OF TEXT]	34	22	"	66	42	B	98	62	b
3	3	[END OF TEXT]	35	23	#	67	43	C	99	63	c
4	4	[END OF TRANSMISSION]	36	24	$	68	44	D	100	64	d
5	5	[ENQUIRY]	37	25	%	69	45	E	101	65	e
6	6	[ACKNOWLEDGE]	38	26	&	70	46	F	102	66	f
7	7	[BELL]	39	27	'	71	47	G	103	67	g
8	8	[BACKSPACE]	40	28	(	72	48	H	104	68	h
9	9	[HORIZONTAL TAB]	41	29	)	73	49	I	105	69	i
10	A	[LINE FEED]	42	2A	*	74	4A	J	106	6A	j
11	B	[VERTICAL TAB]	43	2B	+	75	4B	K	107	6B	k
12	C	[FORM FEED]	44	2C	,	76	4C	L	108	6C	l
13	D	[CARRIAGE RETURN]	45	2D	-	77	4D	M	109	6D	m
14	E	[SHIFT OUT]	46	2E	.	78	4E	N	110	6E	n
15	F	[SHIFT IN]	47	2F	/	79	4F	O	111	6F	o
16	10	[DATA LINK ESCAPE]	48	30	0	80	50	P	112	70	p
17	11	[DEVICE CONTROL 1]	49	31	1	81	51	Q	113	71	q
18	12	[DEVICE CONTROL 2]	50	32	2	82	52	R	114	72	r
19	13	[DEVICE CONTROL 3]	51	33	3	83	53	S	115	73	s
20	14	[DEVICE CONTROL 4]	52	34	4	84	54	T	116	74	t
21	15	[NEGATIVE ACKNOWLEDGE]	53	35	5	85	55	U	117	75	u
22	16	[SYNCHRONOUS IDLE]	54	36	6	86	56	V	118	76	v
23	17	[ENG OF TRANS. BLOCK]	55	37	7	87	57	W	119	77	w
24	18	[CANCEL]	56	38	8	88	58	X	120	78	x
25	19	[END OF MEDIUM]	57	39	9	89	59	Y	121	79	y
26	1A	[SUBSTITUTE]	58	3A	:	90	5A	Z	122	7A	z
27	1B	[ESCAPE]	59	3B	;	91	5B	[	123	7B	{
28	1C	[FILE SEPARATOR]	60	3C	<	92	5C	\	124	7C	|
29	1D	[GROUP SEPARATOR]	61	3D	=	93	5D	]	125	7D	}
30	1E	[RECORD SEPARATOR]	62	3E	>	94	5E	^	126	7E	~
31	1F	[UNIT SEPARATOR]	63	3F	?	95	5F	_	127	7F	[DEL]

ASCII: Delete character (127)

Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char
0	0	[NULL]	32	20	[SPACE]	64	40	@	96	60	`
1	1	[START OF HEADING]	33	21	!	65	41	A	97	61	a
2	2	[START OF TEXT]	34	22	"	66	42	B	98	62	b
3	3	[END OF TEXT]	35	23	#	67	43	C	99	63	c
4	4	[END OF TRANSMISSION]	36	24	$	68	44	D	100	64	d
5	5	[ENQUIRY]	37	25	%	69	45	E	101	65	e
6	6	[ACKNOWLEDGE]	38	26	&	70	46	F	102	66	f
7	7	[BELL]	39	27	'	71	47	G	103	67	g
8	8	[BACKSPACE]	40	28	(	72	48	H	104	68	h
9	9	[HORIZONTAL TAB]	41	29	)	73	49	I	105	69	i
10	A	[LINE FEED]	42	2A	*	74	4A	J	106	6A	j
11	B	[VERTICAL TAB]	43	2B	+	75	4B	K	107	6B	k
12	C	[FORM FEED]	44	2C	,	76	4C	L	108	6C	l
13	D	[CARRIAGE RETURN]	45	2D	-	77	4D	M	109	6D	m
14	E	[SHIFT OUT]	46	2E	.	78	4E	N	110	6E	n
15	F	[SHIFT IN]	47	2F	/	79	4F	O	111	6F	o
16	10	[DATA LINK ESCAPE]	48	30	0	80	50	P	112	70	p
17	11	[DEVICE CONTROL 1]	49	31	1	81	51	Q	113	71	q
18	12	[DEVICE CONTROL 2]	50	32	2	82	52	R	114	72	r
19	13	[DEVICE CONTROL 3]	51	33	3	83	53	S	115	73	s
20	14	[DEVICE CONTROL 4]	52	34	4	84	54	T	116	74	t
21	15	[NEGATIVE ACKNOWLEDGE]	53	35	5	85	55	U	117	75	u
22	16	[SYNCHRONOUS IDLE]	54	36	6	86	56	V	118	76	v
23	17	[ENG OF TRANS. BLOCK]	55	37	7	87	57	W	119	77	w
24	18	[CANCEL]	56	38	8	88	58	X	120	78	x
25	19	[END OF MEDIUM]	57	39	9	89	59	Y	121	79	y
26	1A	[SUBSTITUTE]	58	3A	:	90	5A	Z	122	7A	z
27	1B	[ESCAPE]	59	3B	;	91	5B	[	123	7B	{
28	1C	[FILE SEPARATOR]	60	3C	<	92	5C	\	124	7C	|
29	1D	[GROUP SEPARATOR]	61	3D	=	93	5D	]	125	7D	}
30	1E	[RECORD SEPARATOR]	62	3E	>	94	5E	^	126	7E	~
31	1F	[UNIT SEPARATOR]	63	3F	?	95	5F	_	127	7F	[DEL]

Q: Convert Hi! from ASCII to Decimal

A. 48, 69, 21

B. 47, 68, 20

C. 71, 104, 34

D. 72, 105, 33

E. None of the above

Q: Convert the following Hex to ASCII:

A. BADGE

B. *),/-

C. A@CFD

D.)(+.,

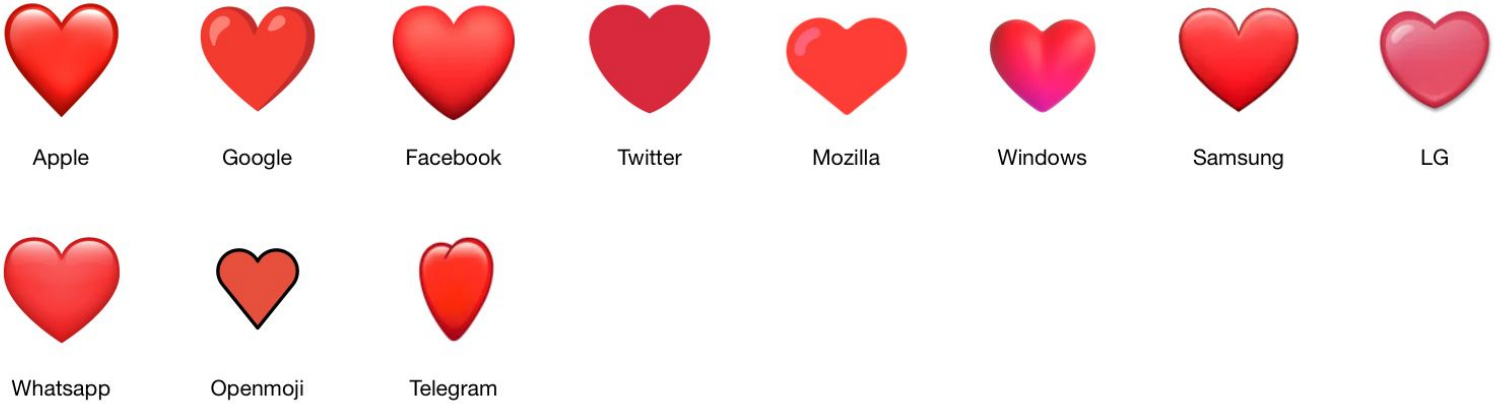
E. None of the above

Binary	01000010	01000001	01000100	01000111	01000101
Hex	42	41	44	47	45
ASCII					

Can we do this faster?

Convert Text to ASCII

Emoji ❤ Red Heart on platforms



Technical Information | Properties | **Encoding** | Copy & Paste Codes

Encoding	hex	dec (bytes)	dec	binary
UTF-8	E2 9D A4	226 157 164	14851492	11100010 10011101 10100100

Source

Demo

Application of ASCII

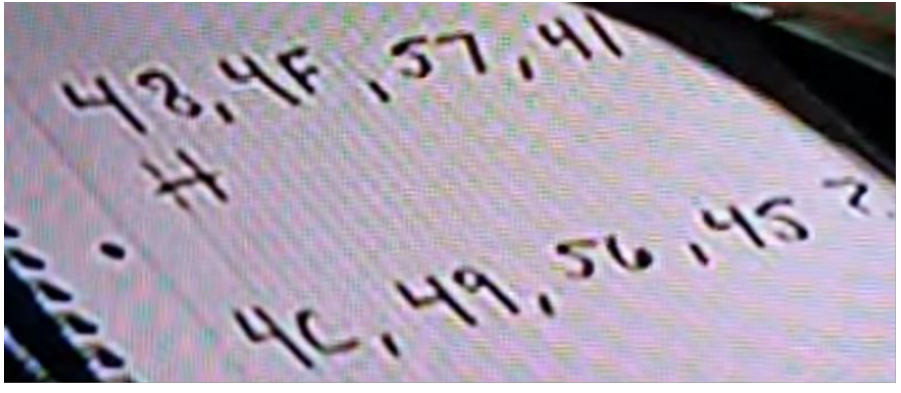
The Martian

The Martian

- “Ridley Scott claimed that one of the most difficult scenes to direct was how to explain to the audience the hexadecimal system Watney uses as a code to communicate with Earth, which Scott admitted was hard for himself to understand.” IMDb

- Youtube Video:
  - The Martian, Hexadecimal Scene

The Martian



Decimal	Hex	Char
64	40	@
65	41	A
66	42	B
67	43	C
68	44	D
69	45	E
70	46	F
71	47	G
72	48	H
73	49	I
74	4A	J
75	4B	K
76	4C	L
77	4D	M
78	4E	N
79	4F	O
80	50	P
81	51	Q
82	52	R
83	53	S
84	54	T
85	55	U
86	56	V
87	57	W
88	58	X
89	59	Y
90	5A	Z

What about other languages?

Arabic (ا-ي)

Chinese (汉字)

Emojis (😊, 🚀)

Unicode

Unicode

Unicode: Overview

Universal character **encoding** standard

- Designed to represent every character from every language in the world, as well as symbols, emojis, and special scripts, using a unified system.

Before unicode…

- Different encoding systems (like ASCII, ISO-8859-1, Shift-JIS)
  - Difficult to mix languages in one document
- Unicode solved this by creating **one global codebook**

How does Unicode Work?

- Unicode assigns a **unique number** called a "**code point**" to every character, regardless of platform, program, or language.
  - Code points are written like: U+0041 (which is 'A').

- Unicode itself is just a standard. To store the characters in files and transmit them over networks, you need **encoding formats**
  - There are different implementations, including UTF-8 and UTF-16 (UTF stands for **U**nicode **T**ransformation **F**ormat)

Encoding Formats

- UTF-8 and UTF-16 are variable length encodings
- They use 1 byte (8 bits) for ASCII, but more for other characters

character	encoding	bits
A	UTF-8	01000001
A	UTF-16	00000000 01000001
A	UTF-32	00000000 00000000 00000000 01000001
あ	UTF-8	11100011 10000001 10000010
あ	UTF-16	00110000 01000010
あ	UTF-32	00000000 00000000 00110000 01000010

Emoji

- Notice how Emoji have the same “CLDR” names and Unicode values but different aesthetics

Smileys & Emotion								
face-smiling								
№	Code	Browser	Sample	GMail	SB	DCM	KDDI	CLDR Short Name
1	U+1F600				—	—	—	grinning face
2	U+1F603							grinning face with big eyes
3	U+1F604					—	—	grinning face with smiling eyes
4	U+1F601							beaming face with smiling eyes
5	U+1F606				—		—	grinning squinting face

Source

Emoji

- This is how skin-tones are varied!

hand-fingers-open				
№	Code	Browser	Sample	CLDR Short Name
1	U+1F44B U+1F3FB			waving hand: light skin tone
2	U+1F44B U+1F3FC			waving hand: medium-light skin tone
3	U+1F44B U+1F3FD			waving hand: medium skin tone
4	U+1F44B U+1F3FE			waving hand: medium-dark skin tone
5	U+1F44B U+1F3FF			waving hand: dark skin tone

Source

Demo

How does Word store its data?

- Uploading a Word document into the online Hex editor suggests that the document is not in ASCII representation

- Most of the files that comprise a Word document are in **XML** (**Ex**tensible **M**arkup **L**anguage) format; they describe metadata such as the font style and size, document creator, etc.

- The files may also contain information about tracked changes to the document, collaborators, privacy and security settings, and more

Activity

How does Microsoft Word store its data?

- Open Microsoft Word
- Write your name in the file and save it
- Visit https://hexed.it/
- Open the file using *Open file* feature
- What do you notice?

CPSC 100 Course Project

Class Activity

- Today we will make groups for the project!

- First, a bit more about the CPSC 100 course project and Contract Grading

CPSC 100 Term Project

Contract Grading [DRAFT]

Oct 3, 2025

Introduction to Contract Grading

Contract Grading

1. Contract Grading involves a shared process of assessment between students and instructors:
    - Based on self-assessment of strengths and limitations, and will determine what students need to do to achieve a certain grade.

2. Contract grading can be used for a specific assignment or project, or for an entire course.

3. Course grades are determined by students completing a pre-determined set of tasks or demonstrate proficiency in skills that students pick from:
    - Tasks and Skills that require more work or are more challenging (or both) allow students to earn higher grades.

Contract Grading - Example

Number of texts read / blogposts written	Percentage Grade	Final Letter Grade
4 (Proust, Bombal, Perec, and Bolaño) / 6	60-63	C
5 (the basic four plus one) / 7	64-67	C+
6 (the basic four plus two) / 8	68-71	B-
7 (the basic four plus three) / 9	72-75	B
8 (the basic four plus four) / 10	76-79	B+
9 (the basic four plus five) / 11	80-84	A-
10 (the basic four plus six) / 12	85-89	A
11 (the basic four plus seven) / 13	90-100	A+

Reference: Dr. Jon Beasley-Murray, "RMST 202: Romance Studies, Modernism to the Present", UBC

Contract Grading in CPSC 100

Contract Grading in Data 301

1. In CPSC 100, we will use Contract Grading for the course project.

2. At the beginning of the project (in Milestone 1), you will choose to contract (with me) a grade that you would like to aim for.
    - All members of the group MUST agree on the contracted grade!

3. You will have two more opportunities mid-way through the project to upgrade (or downgrade) your contracted grade.
    - All members of the group MUST agree on the change!

4. All members of the group will earn the same group grade in the project

	Requirements (Draft)
C	- A bunch of requirements - Demonstrate an EXCELLENT level of understanding of 3 course topics
B	Everything in the buckets above PLUS - A few more requirements - Demonstrate an EXCELLENT level of understanding of +1 course topic
A	Everything in the buckets above PLUS - A few more requirements - Demonstrate an EXCELLENT level of understanding of +1 course topic
A+	Everything in the buckets above PLUS - A few more requirements - Demonstrate an EXCELLENT level of understanding of +3 course topics

Q: Which topic are you most interested in (not finalized) ?

A. Generative AI and student learning

B. Technological inequality

C. Algorithmic Bias

D. Financial and Environmental impacts of technology

E. Technology and Crime

Participation Question

What grade do you intend to contract for?

A+

A

B

C

Take Home Practice

Q: Convert the following hexadecimal sequence to ASCII: 53 54 41 52 53

A. STARS

B. 56)45

C. !@#$$

D. HELLO

E. WORLD

Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char
0	0	[NULL]	32	20	[SPACE]	64	40	@	96	60	`
1	1	[START OF HEADING]	33	21	!	65	41	A	97	61	a
2	2	[START OF TEXT]	34	22	"	66	42	B	98	62	b
3	3	[END OF TEXT]	35	23	#	67	43	C	99	63	c
4	4	[END OF TRANSMISSION]	36	24	$	68	44	D	100	64	d
5	5	[ENQUIRY]	37	25	%	69	45	E	101	65	e
6	6	[ACKNOWLEDGE]	38	26	&	70	46	F	102	66	f
7	7	[BELL]	39	27	'	71	47	G	103	67	g
8	8	[BACKSPACE]	40	28	(	72	48	H	104	68	h
9	9	[HORIZONTAL TAB]	41	29	)	73	49	I	105	69	i
10	A	[LINE FEED]	42	2A	*	74	4A	J	106	6A	j
11	B	[VERTICAL TAB]	43	2B	+	75	4B	K	107	6B	k
12	C	[FORM FEED]	44	2C	,	76	4C	L	108	6C	l
13	D	[CARRIAGE RETURN]	45	2D	-	77	4D	M	109	6D	m
14	E	[SHIFT OUT]	46	2E	.	78	4E	N	110	6E	n
15	F	[SHIFT IN]	47	2F	/	79	4F	O	111	6F	o
16	10	[DATA LINK ESCAPE]	48	30	0	80	50	P	112	70	p
17	11	[DEVICE CONTROL 1]	49	31	1	81	51	Q	113	71	q
18	12	[DEVICE CONTROL 2]	50	32	2	82	52	R	114	72	r
19	13	[DEVICE CONTROL 3]	51	33	3	83	53	S	115	73	s
20	14	[DEVICE CONTROL 4]	52	34	4	84	54	T	116	74	t
21	15	[NEGATIVE ACKNOWLEDGE]	53	35	5	85	55	U	117	75	u
22	16	[SYNCHRONOUS IDLE]	54	36	6	86	56	V	118	76	v
23	17	[END OF TRANS. BLOCK]	55	37	7	87	57	W	119	77	w
24	18	[CANCEL]	56	38	8	88	58	X	120	78	x
25	19	[END OF MEDIUM]	57	39	9	89	59	Y	121	79	y
26	1A	[SUBSTITUTE]	58	3A	:	90	5A	Z	122	7A	z
27	1B	[ESCAPE]	59	3B	;	91	5B	[	123	7B	{
28	1C	[FILE SEPARATOR]	60	3C	<	92	5C	\	124	7C	|
29	1D	[GROUP SEPARATOR]	61	3D	=	93	5D	]	125	7D	}
30	1E	[RECORD SEPARATOR]	62	3E	>	94	5E	^	126	7E	~
31	1F	[UNIT SEPARATOR]	63	3F	?	95	5F	_	127	7F	[DEL]

Q: Convert the following hexadecimal sequence to ASCII: 53 54 41 52 53

A. STARS

B. 56)45

C. !@#$$

D. HELLO

E. WORLD

Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char
0	0	[NULL]	32	20	[SPACE]	64	40	@	96	60	`
1	1	[START OF HEADING]	33	21	!	65	41	A	97	61	a
2	2	[START OF TEXT]	34	22	"	66	42	B	98	62	b
3	3	[END OF TEXT]	35	23	#	67	43	C	99	63	c
4	4	[END OF TRANSMISSION]	36	24	$	68	44	D	100	64	d
5	5	[ENQUIRY]	37	25	%	69	45	E	101	65	e
6	6	[ACKNOWLEDGE]	38	26	&	70	46	F	102	66	f
7	7	[BELL]	39	27	'	71	47	G	103	67	g
8	8	[BACKSPACE]	40	28	(	72	48	H	104	68	h
9	9	[HORIZONTAL TAB]	41	29	)	73	49	I	105	69	i
10	A	[LINE FEED]	42	2A	*	74	4A	J	106	6A	j
11	B	[VERTICAL TAB]	43	2B	+	75	4B	K	107	6B	k
12	C	[FORM FEED]	44	2C	,	76	4C	L	108	6C	l
13	D	[CARRIAGE RETURN]	45	2D	-	77	4D	M	109	6D	m
14	E	[SHIFT OUT]	46	2E	.	78	4E	N	110	6E	n
15	F	[SHIFT IN]	47	2F	/	79	4F	O	111	6F	o
16	10	[DATA LINK ESCAPE]	48	30	0	80	50	P	112	70	p
17	11	[DEVICE CONTROL 1]	49	31	1	81	51	Q	113	71	q
18	12	[DEVICE CONTROL 2]	50	32	2	82	52	R	114	72	r
19	13	[DEVICE CONTROL 3]	51	33	3	83	53	S	115	73	s
20	14	[DEVICE CONTROL 4]	52	34	4	84	54	T	116	74	t
21	15	[NEGATIVE ACKNOWLEDGE]	53	35	5	85	55	U	117	75	u
22	16	[SYNCHRONOUS IDLE]	54	36	6	86	56	V	118	76	v
23	17	[END OF TRANS. BLOCK]	55	37	7	87	57	W	119	77	w
24	18	[CANCEL]	56	38	8	88	58	X	120	78	x
25	19	[END OF MEDIUM]	57	39	9	89	59	Y	121	79	y
26	1A	[SUBSTITUTE]	58	3A	:	90	5A	Z	122	7A	z
27	1B	[ESCAPE]	59	3B	;	91	5B	[	123	7B	{
28	1C	[FILE SEPARATOR]	60	3C	<	92	5C	\	124	7C	|
29	1D	[GROUP SEPARATOR]	61	3D	=	93	5D	]	125	7D	}
30	1E	[RECORD SEPARATOR]	62	3E	>	94	5E	^	126	7E	~
31	1F	[UNIT SEPARATOR]	63	3F	?	95	5F	_	127	7F	[DEL]

Convert your name into its ASCII values

Convert your name into its Hex format

Convert your name into its Binary format

Use https://symbl.cc/ to find the unicode for the following characters:

- 
- 
- 
- @
- ê