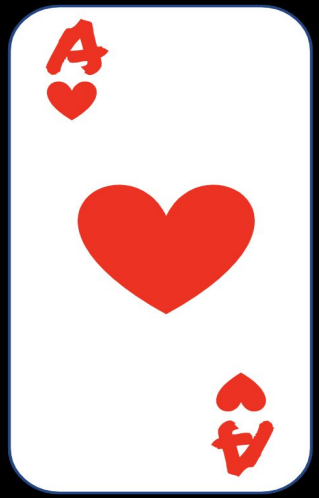
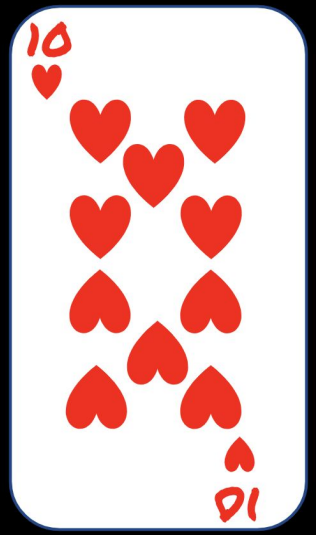
Welcome to AP Computer Science Principles(APCSP)

Get a straight Flush





Complete at least one task from each of the card slides to make your Royal Flush

You will upload all of the assignments to canvas the first week of August
These assignments will count as your first assessment grade of the year.

Honor code

Students of Xavier College Preparatory High School, pledge to uphold the highest standards of academic integrity and honesty. I recognize that plagiarism and other forms of academic misconduct undermine the fundamental principles of scholarship and personal responsibility that are central to our educational mission. I understand the meaning and importance of academic honesty.

I acknowledge that the following actions will compromise my academic integrity and affect my grade, reputation, and future goals:

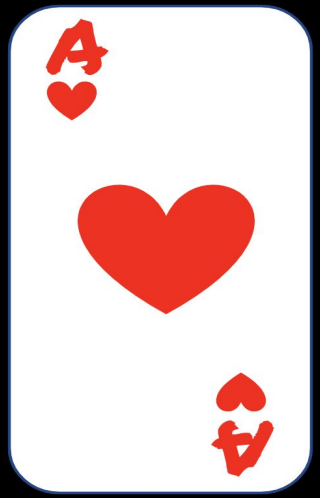
I will not engage in plagiarism, which includes presenting someone else's work as our own, submitting work copied from a source without proper attribution when allowed, or submitting work created in collaboration with others without acknowledgment.

I will not use AI language models, such as ChatGPT, to generate code or other academic work, except where explicitly allowed by the instructor.

I will take responsibility for ensuring that our work is original, and we will report any suspected cases of academic misconduct to the appropriate authorities.

I will not allow classmates to copy my code or answers and I understand that collaboration does not mean copying. I understand that posting any solution code online is considered a violation of academic integrity.

By signing this honor code, I affirm my commitment to academic integrity and to upholding the values of honesty, respect, and responsibility in all aspects of my academic life.



Complete two of these for your Ace

Share in the Scratch studio

http://scratch.mit.edu/signup/rnx69knre

Usernames must not reveal the identity of students in any way.

Scratch Tutorial Part 1

Scratch Tutorial Part 2

Scratch Tutorial Build Your Own Snowman

Scratch Tutorial Don't Get Wet

Scratch Tutorial Short Animation

Watch One of The Following MOvies

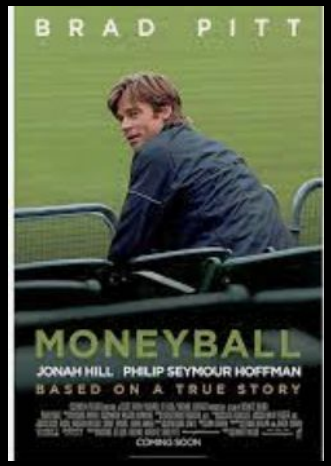
write a one page paper answering Two(2) of the Three(3) Prompts (Next slides) on Computer Science in the movie

(feel free to go over a page if you want – Read the prompts first before deciding what movie)

Remember our honor code.

I do use an AI detector so write your own responses

All Movies are PG - PG13

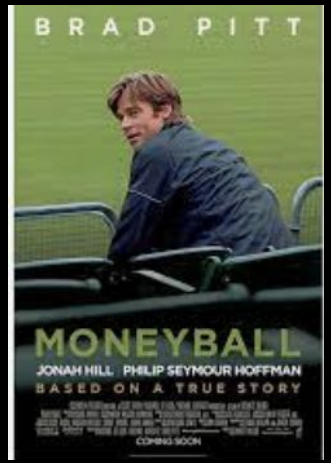


Minority Report

- Discuss the role of computer vision in the movie "Minority Report." How does the PreCrime system utilize computer science techniques to predict and prevent crimes? Discuss the use of facial recognition, image analysis, and pattern recognition in the film.
- The concept of predictive algorithms plays a crucial role in the plot. Analyze how computer science principles, such as machine learning and **data mining (look this term up we will be learning about it later in the class),** are used to anticipate criminal behavior. Discuss the ethical implications and potential limitations of relying solely on algorithmic predictions.
- During the movie we see the manipulation and alteration of digital information Discuss the cybersecurity aspects depicted in the film, focusing on hacking, data manipulation, and the challenges of securing sensitive information in a highly advanced technological society.

The Martian

- In order to survive, the main character has to rely on critical thinking and computer science skills. How is computer programming and problem-solving portrayed in the movie. Discuss the role of coding, algorithms, and simulation models in overcoming challenges and finding innovative solutions in a hostile environment.
- Research the role of computer science in the design and operation of life-support systems, communication devices, and robotic exploration tools depicted in the film. Discuss the importance of software engineering and hardware integration in space exploration.
- The movie portrays the challenges of interplanetary communication and coordination between the stranded astronaut and mission control on Earth. Research networks and protocols, as these will be discussed later in the course. Discuss the potential limitations and risks associated with communication delays in space missions.



Moneyball

- The main character uses data-driven decision-making in his job as the general manager of the Oakland Athletics. Discuss how computer science techniques, such as statistical analysis and data mining, are employed to identify undervalued players and gain a competitive advantage.
- Computer algorithms are used to analyze player performance and construct a winning team on a limited budget. Discuss the role of machine learning and predictive modeling(look this term up we will be learning about it later in the class) in player selection and team management. How does computer science help optimize player performance and maximize team efficiency?
- The use of data visualization (the graphical representation of information and data. to convey complex information - graphs and charts) is used to show team management how things would work. Discuss how computer science techniques are used to present data effectively in the movie. What impact does data visualization have on understanding and interpreting baseball statistics?

TRON

- The main character is transported into a digital world where computer programs come to life. Explore the portrayal of computer science concepts, such as artificial intelligence, virtual reality, and computer graphics, in the movie. Discuss how these elements contribute to the storyline and how a digital realm might actually look.
- A computer virus is shown as a malevolent entity within the digital world. Discuss the parallels between real computer viruses and the representation of computer viruses in the movie. How does the movie highlight the importance of cybersecurity and the potential risks associated with malicious software?
- Research how computer science techniques, such as computer graphics rendering, 3D modeling, and animation, were utilized to create the distinctive neon-lit world of Tron. Discuss the advancements in computer graphics technology since the release of the movie and their impact on the film industry.

The Internship

- Discuss the role of computer science in the movie by describing how programming languages, algorithms, and data structures are showcased or referenced. How does computer science knowledge contribute to solving challenges and competing in the internship program?
- The characters use various Google products and services, such as Google Search, Google Maps, and Google Docs. Discuss how these technologies leverage computer science principles, such as search algorithms, geolocation, and collaborative document editing. How do these applications demonstrate the integration of computer science into everyday life?
- Collaboration and teamwork are a key component to success in the movie. Discuss the significance of computer science in fostering effective collaboration among the characters. How do tools like version control systems, online collaboration platforms, and project management software enhance teamwork and productivity in a tech-focused environment?

Critical thinking is an integral part of Computer Science. Puzzles are a great way to train our minds

Please complete 2 of the following puzzles Located on the next 2 slide

You may copy them onto graph paper

	3		4					
				1	8		2	
	4				2	3	6	
	8	9		4				
3	6							
	5							7
7		6			4	1		
		4			7		3	
			9			2		

9				8	4	5		
	8						7	3
			5	1				8
6	2							
			1		9			
							8	2
8				7	2			
4	7						2	
		5	4	3				1

3	2	4		7	1		9	
			2					4
					4			2
1		6	9				4	
4				1				5
	8				5	1		3
7			3					
6					7			
	4		5	9		6	7	1

		5	6		4		8	
9					5			
			9	1				
5		6	8			7		
		7		9		4		
		2			7	1		5
				3	8			
			7					2
	3		4		2	8		

Algorithm - Set of instructions

Show how good you are at writing your own algorithm.

1) Choose one of the scenarios on the next slide
2) Write a detailed algorithm for the that scenario
3) Give those instructions to another person to complete
   a) They can only do exactly what is says on your algorithm
   b) You cannot talk to them at all
4) Film that person completing your algorithm

This assignment will not be graded on accuracy. It might be quite funny as you will miss steps.

HAVE FUN WITH THIS

****** **You may not say anything while that person is completing your algorithm.**

When finished write down what went right and what went wrong with your algorithm

****

You will be handing turning this paper in along with your video

Brushing your teeth

Walking the Dog

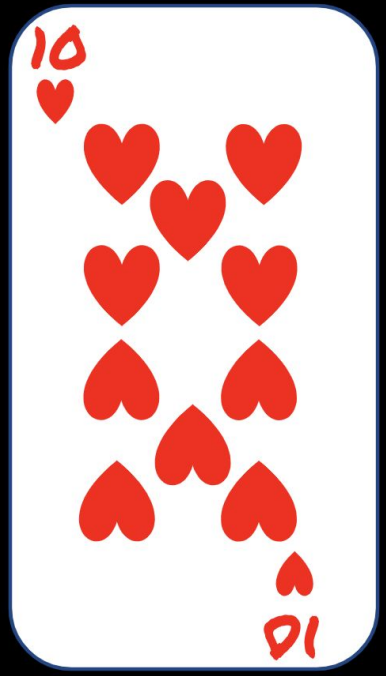
Doing a Load of Laundry

Making a Grilled Cheese

Pacman

Time for some fun! Go to the following web site and play Pacman
https://worldsbiggestpacman.com/

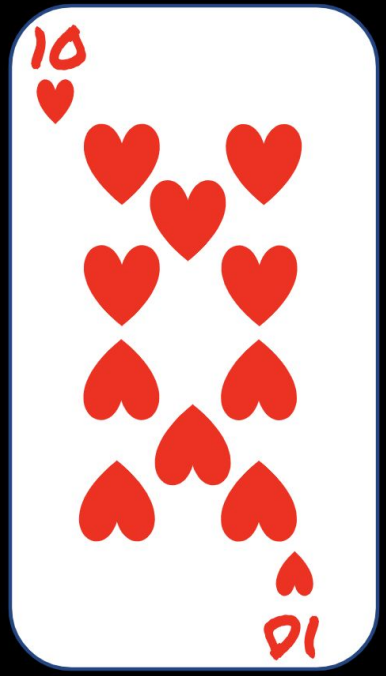
Using the scaffolding on the next few slides: fill in 4 rules you find when playing the game. We will be discussing these in class in August



Pacman

if - else example:

```
if Ghost touches Pacman:
    Pacman dies and you lose a life
else:
    Pacman lives
```



Pacman

if _____:

_____

else:

_____

if _____:

_____

else:

_____

if _____:

_____

else:

_____

if _____:

_____

else:

_____