

28th Edition

FINWIZ

**CBS
SIMULATION
CHALLENGE**

#CrackTheWealthCode



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As the leader of a discrete organisation of masterminds, the world is your playground and the ultimate prize is within your grasp. You have set your sights on the most coveted target in the world of art heists - **The Valerius Museum**, dedicated to the famous and world-renowned painter Maximus Valerius. Situated in the heart of the Netherlands, it is a fortress of priceless paintings, guarded by the most advanced security system money can buy. But as the leader of this elite operation, you know that nothing is impossible, and no challenge is too great. You will stop at nothing to achieve your goal, and the Valerius museum is just the beginning of your legendary heist. It is up to you how you want to approach this heist, you get to decide who you want to hire to pull off this heist, the number of members in total, the disguises you will wear, your weaponry, the rooms you will choose to loot. Do keep in mind the base total time available to you is **60 minutes**.

The first step of your mission is to choose your team. You can choose from among 5 members. **Apex**, a master hacker who can bypass any security system and gain access to valuable information. **Blast**, an expert in explosives who can blow open any safe or vault. **Cloak**, a stealthy infiltrator who can go undetected and disable alarms. **Dash**, a highly trained combat specialist who can take out multiple enemies quickly and efficiently. **Echo**, a mysterious figure with a reputation for getting things done quietly and efficiently, whether it's cracking a safe or taking out a target.

Each member has a cost and associated risk owing to their abilities, mentioned in the table below



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TEAM MEMBER	COST	RISK
APEX (A)	2000000	0.1
BLAST (B)	1800000	0.15
CLOAK (C)	1700000	0.2
DASH (D)	1400000	0.3
ECHO (E)	1575000	0.25

Note: Due to low manpower, when it comes to two member teams, their cost will be adjusted for ineffectiveness as a result of which there will be additional risk multiple of 1.48

You can choose a team of 2 or 3 members and the combinations are fixed, here is the list of the combinations



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COMBINATIONS	NUMBER OF MEMBERS
A, B, E	3
A, D, E	3
B, C, D	3
A, D	2
C, E	2
B, C	2

A security fee needs to be paid to your teammates as well. By paying the security fee, you are essentially providing each team member with upfront funds to participate in the heist. This ensures that everyone has the resources they need to carry out their part of the operation. At the same time, the security fee also serves as a safety net for the team. If something goes wrong during the heist and they have to cut their losses, each team member will still have the money from the security fee to fall back on.



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It's important to note that the security fee is not a loan or a form of indebtedness. **The Security cost will be 5% of the total team cost adjusted for risk.**

Disguises are an essential element of any heist, it allows you to blend with your surroundings, avoid detection. Depending on the disguise you choose your maximum time will increase. For example, if you choose the disguise of security you get a time multiple of 1.15 that means your total time increases from 60 minutes to 69 minutes. However, this will cost you money. You must choose one disguise of the two. The whole team will be using the same disguise. The risk is applied to the whole team.

DISGUISE	COST PER MEMBER	RISK OF DETECTION	TIME MULTIPLIER
ART CRITIC	4000	0.3	1.1
SECURITY GUARD	8000	0.6	1.15



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The rooms collecting the valuable art pieces will be heavily guarded by individuals trained in top tiers of martial arts. Weapons will be needed to subdue said individuals and as a result you have been given 3 options, keep in mind carrying weapons will have an associated cost and risk. On top of that, we have given an elimination rate that is the time taken to subdue one guard. You can choose only one type of weapon for the whole team, for example, if you have chosen a Stun Gun for your team A,B,E all three members will have stun guns.

NON-LETHAL WEAPON	COST PER MEMBER	RISK	TIME PER GUARD
STUN GUN	20000	0.15	1.35
TRANQUILIZER	35000	0.3	1.15
SONIC DISRUPTOR	30000	0.2	1.25

Note: The time per guard is for one weapon to subdue the guard, depending on the number of teammates you choose you will have more than one weapon hence your time per guard will decrease.



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The art pieces are spread across the museum in various rooms that are protected by guards. There are five rooms – the first one being the main gallery which is a large open room with high ceilings and a grand staircase leading up to a mezzanine level. The walls are lined with classic paintings and sculptures from various eras, including works by Renaissance masters and modern art icons. Second, The Contemporary Art Wing, it is a sleek modern space with polished concrete floors and floor-to-ceiling windows overlooking the city skyline. The walls are adorned with avant-garde paintings and sculptures from up-and-coming artists, including large installations that dominate the space. Third is the Egyptian Exhibit, is a dimly lit room with sandstone walls and intricate hieroglyphic paintings carved into every surface. Fourth is the Asian Art Collection, it is a serene and tranquil room with traditional Japanese-style architecture and design. The walls are adorned with intricate silk tapestries and wooden carvings depicting scenes from Asian mythology and folklore. Fifth, The Pop Art Lounge, it is a vibrant and colorful room that celebrates the iconic pop art movement of the 1960s. The walls are adorned with bold, graphic prints and paintings.

Note: Due to layout of the museum you can only loot exactly 3 rooms, the combination of said rooms is completely up to you.



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ROOM	NUMBER OF PAINTINGS	TIME PER PAINTING	VALUE PER PAINTING	GUARDS
MAIN GALLERY	9	8.5	650000	3
CONTEMPORARY ART WING	6	12	950000	4
EGYPTIAN EXHIBIT	7	12.5	900000	5
ASIAN ART COLLECTION	5	14.5	1180000	4
POP ART LOUNGE	4	16	1450000	3

Note: The time per painting is for one person only, depending on the number of teammates you choose, you must calculate the same. On top of that, depending on the characters you choose, each of them will have their own efficiency within the given room, for example, Dash, who is highly trained in martial arts may prove to be useful in a room containing many guards.



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CREW	MAIN GALLERY	CONTEMPORARY ART WING	EGYPTIAN EXHIBIT	ASIAN ART COLLECTION	POP ART LOUNGE
APEX	0.46	0.51	0.43	0.49	0.54
BLAST	0.51	0.59	0.46	0.55	0.61
CLOAK	0.54	0.59	0.51	0.57	0.61
DASH	0.60	0.64	0.58	0.61	0.69
ECHO	0.52	0.57	0.51	0.54	0.59

Underneath the art museum is a basement containing one of Maximum Valerius' unreleased artwork which was never shown to the public owing to his tragic and unknown demise. Ordinary heist equipment is not going to be cut out for the job should you choose to explore this haven of invaluable art. To confirm the location of this chamber you will need to purchase a High End Ground Penetrating Radar (GPR) which will be used to scan the ground beneath the museum to create a detailed map of the underground structure and locate the paintings.



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This equipment will cost **205000** and carries an associated risk of **0.5**. The area would be defended by **4** guards and different members would have different efficiencies in this room. **Apex** has an efficiency of **0.56**. **Blast** has an efficiency of **0.63**. **Cloak** has an efficiency of **0.65**, **Dash** has an efficiency of **0.71** and lastly, **Echo** has an efficiency of **0.64**.

The time to loot the painting is **50 minutes** and the loot would be worth **6000000**.

Hint: Take the secret area as another room while calculating the optimum solution and you cannot loot this area without the equipment so choose wisely. Including this room you can still only loot a total of 3.

Now that you have looted the rooms of your choice it is time for exfiltration, you have two options, the first one being a Rooftop Helicopter Extraction, The team can use a helicopter to land on the rooftop of the museum and make a quick escape. This option provides a quick and easy exit, but may attract attention from law enforcement and other security personnel. The second option is a car escape; the team can use a getaway car to make a quick escape from the museum. This option provides a flexible and fast exit, but may require careful planning and coordination. Depending on the number of teammates you have chosen, there will be a cost per member, there is also a running cost which basically means the amount of time it takes you to complete the heist is being subtracted from your overall loot as you have hired a helicopter driver or getaway specialist to aid in your escape. Lastly, there is an eventual risk associated with either option you choose



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EXIT	COST PER MEMBER- MINUTE	RISK OF INTERCEPTION
CAR	8850	0.45
HELICOPTER	10800	0.2

Your objective is to maximise your loot, while minimising your cost and operate within the time constraints.

Formula Cheat Sheet

- Risk adjusted cost = $\text{Cost} * (1 + \text{Risk})$
- Cost for 3 member team = Risk Adjusted Cost of Member 1 + Risk Adjusted Cost of Member 2 + Risk Adjusted Cost of Member 3
- Cost for 2 member team = (Risk adjusted cost of members * Additional Risk Multiplier)
- Security cost = 5% of Team cost
- Security adjusted cost = Team cost + 5% of Team cost
- Disguise cost = (Risk adjusted cost) * (Number of members)
- Total time available = $60 * (\text{Disguise time multiplier})$
- Weapon cost = (Risk adjusted cost) * (Number of members)
- Exit cost = (Risk adjusted cost) * (Number of members) * (Time taken to complete)
- Total cost = Team cost + Weapon cost + Disguise cost + Exit cost + Equipment cost
- Room time(for a single person) = $\frac{\text{Number of paintings} * \text{Time taken per painting}}{\text{Number of members in the team}}$
- Room loot = Number of paintings * Value per painting
- Total loot = Loot of room 1 + Loot of room 2 + Loot of room 3
- Time taken to subdue guards using weapon = $\frac{((\text{Total number of guards}) * (\text{Time taken to subdue one guard per weapon}))}{(\text{Number of members in the team})}$
- Efficiency of a team in a room = Average of all the efficiencies of the team members for that room
- Total room time (for a team) = $\frac{(\text{Efficiency of team in a room} * \text{Time taken in a room})}{(\text{Number of members in the team})}$
- Total time = Total room time for a team + Total time taken to subdue guard using weapon
- Profit = Total loot – Total cost



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Points To Remember

- The teams would be judged on the basis of maximization of profits which would be achieved through an optimal combination of team, disguises, weapons, rooms, equipment and exit.
- You would have to submit your solution in the provided google form with the respective inputs mentioned. **Click [here](#) or bit.ly/CBS_Simulation_23**
- Have fun while looting the most fortified museum in the world!