

# Game Development and Visualization

## REPORT - 2D Games

### Team members

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### Ideas of the game

- **Black Swordsman** is an action-adventure game that draws inspiration from the intense combat of Hollow Knight and the dark fantasy storyline of **Berserk** manga. Players will embark on a journey through a haunting and treacherous world, battling formidable foes and uncovering a gripping narrative filled with mystery and tragedy.
- **Gameplay system:** Platformer, where players can take control of a warrior, wielding a melee weapon similar to the main character in Hollow Knight.

### Main features

- There are 2 levels and 2 game modes (easy and hard).
- Many kinds of enemies can be a challenge for players, as well as items dropped from enemies can be helpful for players.
- Familiar input system from the keyboard:
  - A/D: Movement.
  - K/L: Skills.
  - 1/2/3/4: Using items.
  - Esc: Open menu.
- The game has an interactive menu, background music, and sound effects.
- There are health bars and mana bars for players to keep track of the current status of their character.

## Main techniques

- Sprite Animation: Implementing frame-based animations for characters, enemies, and environmental elements to create dynamic and lifelike movements.
- Collision Detection: Implementing collision algorithms to detect interactions between characters, objects, and the environment.
- Physics Simulation: Applying rigid body physics to control character movement, object interactions, and environmental forces like gravity and friction.
- UI Layout: Creating dynamic and responsive UI layouts that adapt to different screen resolutions and aspect ratios.
- Interactive Buttons: Implementing button functionalities, hover effects, and click interactions for menu navigation and in-game actions.
- HUD (Heads-Up Display): Designing and integrating HUD elements to display character health, stamina, inventory, and other important information.

## References

- [2D Platformer Controller](#)
- [Character sprites](#)
- [Environment sprites](#)
- [Game music and sound effects](#)