High level requirements

|  |  |
| --- | --- |
| Requirement ID | Description |
| HLR\_001 | The Pokemon Battle Simulator frontend should have an interactive terminal that supports latin characters |
| HLR\_002 | The Pokemon Battle Simulator frontend should have an interactive terminal that supports numerical characters |
| HLR\_003 | The Pokemon Battle Simulator frontend should send user interactive input data to the Pokemon Battle simulator backend |
| HLR\_004 | The Pokemon Battle Simulator backend should send battle information (Pikachu attack name, Charizard attack name, Pikachu attack damage, Charizard attack damage, round number, Pikachu health points, and Charizard health points) |
| HLR\_005 | The Pokemon Battle Simulator frontend should control the interactive terminal |
| HLR\_006 | The Pokemon Battle Simulator backend shall send an “Invalid move” exception to the Pokemon Battle Simulator frontend when the same attack is used twice in a row or a non exsistant attack name is selected |
| HLR\_007 | The Pokemon Battle Simulator backend shall send a “Battle Ended” exception to the Pokemon Battle Simulator frontend when Pikachu health points or Charizard health points are depleted |

Intermediate level requirements

|  |  |  |
| --- | --- | --- |
| Requirement ID | Description | Traceability  High-level  requirement/s |
| ILR\_001 | The Pokemon Battle Simulator frontend shall control the position of the displayed Pikachu attack damage (at the end of the first line) | HLR\_002  HLR\_004  HLR\_005 |
| ILR\_002 | The Pokemon Battle Simulator frontend shall control the position of the displayed Pikachu attack name (at the front of the first line) | HLR\_001  HLR\_004  HLR\_005 |
| ILR\_003 | The Pokemon Battle Simulator frontend shall control the position of the displayed Charizard attack damage (at the end of the second line) | HLR\_002  HLR\_004  HLR\_005 |
| ILR\_004 | The Pokemon Battle Simulator frontend shall control the position of the displayed Charizard attack name (at the front of the second line) | HLR\_001  HLR\_004  HLR\_005 |
| ILR\_005 | The Pokemon Battle Simulator frontend shall control the position of the Round number (third line) | HLR\_001  HLR\_002  HLR\_004  HLR\_005 |
| ILR\_006 | The Pokemon Battle Simulator front end shall control the position of the displayed Pikachu health points (fourth Line) | HLR\_001  HLR\_002  HLR\_004  HLR\_005 |
| ILR\_007 | The Pokemon Battle Simulator frontend shall control the position of the displayed Charizard health points (fifth line) | HLR\_001  HLR\_002  HLR\_004  HLR\_005 |
| ILR\_008 | The Pokemon Battle Simulator frontend shall control the position of the last Pikachu attack (sixth line) | HLR\_001  HLR\_004  HLR\_005 |
| ILR\_009 | The Pokemon Battle Simulator frontend shall control the position of the last Charizard attack (seventh line) | HLR\_001  HLR\_004  HLR\_005 |
| ILR\_010 | The Pokemon Battle Simulator backend should calculate Pikachu health points by subtracting the Charizard attack damage from the existing Pikachu health points | HLR\_004 |
| ILR\_011 | The Pokemon Battle Simulator backend should calculate Charizard health points by subtracting the Pokemon attack damage from the existing Charizard health points | HLR\_004 |
| ILR\_012 | The Pokemon Battle Simulator backend should select a Charizard attack based of the round number | HLR\_004 |
| ILR\_013 | The Pokemon Battle Simulator backend shall make the Pikachu health points equal to 0 if the Pikachu health points become a value of less than 0 | HLR\_004 |
| ILR\_014 | The Pokemon Battle Simulator backend shall make the Charizard health points equal to 0 of the Charizard health points become a value of less than 0 | HLR\_004 |
| ILR\_015 | The Pokemon Battle Simulator backend shall replay the round with a new user input if the same Pikachu attack is selected two times in a row | HLR\_005  HLR\_006 |
| ILR\_016 | The Pokemon Battle Simulator backend should replay the round with a new user input if a non-existent Pikachu attack is selected | HLR\_005  HLR\_006 |
| ILR\_017 | The Pokemon Battle Simulator backend should stop the simulation if Pikachu health points is equal to or less than 0 | HLR\_005  HLR\_007 |
| ILR\_018 | The Pokemon Battle Simulator backend should stop the simulation if Charizard health points is equal to or less than 0 | HLR\_005  HLR\_007 |

Low level requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Requirement ID | Description | Traceability  High-level  requirement/s | Traceability  Inter-level  requirement/s |
| LLR\_001 | The function that sends an “Invalid move” exception to the Pokemon Battle Simulator frontend when the same attack is used twice in a row or a non exsistant attack name is selected shall have the following characteristics  Function prototype: def attack(self, attack\_name):  if attack\_name == self.last\_attack:  raise InvalidMove("Cannot use the same attack twice in a row.")  if attack\_name not in self.attacks:  raise InvalidMove("Invalid attack name.")  damage = self.attacks[attack\_name]  self.last\_attack = attack\_name  return damage  Function attack input arguments:  attack\_name – The attack selected by the user through the interactive terminal | HLR\_006 | ILR\_015  ILR\_016 |
| LLR\_002 | The code that sends a “BattleEnded” exception to the Pokemon Battle Simulator frontend when Pikachu health points or Charizard health points are depleted shall have the following characteristics:  if self.charizard.hp <= 0:  print(f"Pikachu used {pikachu\_attack\_name} and dealt {result[0]} damage.")  self.pikachu.hp += charizard\_damage  self.last\_charizard\_attack = "None"  print(battle.battle\_info())  raise BattleEnded("Charizard has been defeated.")  if self.pikachu.hp <= 0:  print(f"Charizard used {result[1]} and dealt {result[2]} damage.")  self.charizard.hp += pikachu\_damage  self.last\_pikachu\_attack = "None"  print(battle.battle\_info())  raise BattleEnded("Pikachu has been defeated.")  Input arguments:  No input arguments | HLR\_007 | ILR\_017  ILR\_018 |
| LLR\_003 | The Charizard class shall select a Charizard attack based of the round number and should have the following characteristics  Class prototype: def attack(self, round\_num):  class Charizard:  def \_\_init\_\_(self):  self.hp = 30  self.attacks = {  1: 2,  2: 1,  3: 3,  4: 2,  5: 1,  6: 3,  7: 2,  8: 1,  9: 3,  10: 2,  11: 1,  12: 3,  13: 2,  14: 1,  15: 3,  16: 2,  17: 1,  18: 3,  19: 2,  20: 1,  21: 3,  22: 2,  23: 1,  24: 3  }  if round\_num not in self.attacks:  raise InvalidMoveException("Invalid round number.")  damage = self.attacks[round\_num]  return damage  Input arguments:  round\_num – The round number at the start of the round | HLR\_005 | ILR\_012 |
| LLR\_004 | The battle\_info function shall show battle information in the correct order and should have the following characteristics  Function prototype: battle\_info(self):  return f"Round: {self.round\_num}\n"\  f"Pikachu HP: {self.pikachu.hp}\n"\  f"Charizard HP: {self.charizard.hp}\n"\  f"Last Pikachu Attack: {self.last\_pikachu\_attack}\n"\  f"Last Charizard Attack: {self.last\_charizard\_attack}"  Input Arguments:  No input arguments | HLR\_001  HLR\_002  HLR\_004  HLR\_005 | ILR\_001  ILR\_002  ILR\_003  ILR\_004  ILR\_005  ILR\_006  ILR\_007  ILR\_008  ILR\_009 |