## CP1401 SP53 2016 – Assessment 1

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**Functions:**

**getComputerChoose**

This function will attach the moves to each number from 1 to 6 which is player’s choice.

**getPlayerChoose**

This function will attach the moves to each random number from 1 to 6 which is generated by computer.

**getResult1**

This function will show the result between player and computer when the player’s move is (1) Punch of Fury.

**getResult2**

This function will show the result between player and computer when the player’s move is (2) Kick of Punishment.

**getResult3**

This function will show the result between player and computer when the player’s move is (3) Sword of Justice.

**getResult4**

This function will show the result between player and computer when the player’s move is (4) Shuriken of Vengeance.

**getResult5**

This function will show the result between player and computer when the player’s move is (5) Nunchucks of Anger.

**getResult6**

This function will show the result between player and computer when the player’s move is (6) Knife of Freedom.

**getSelection**

This function will do the error handling for the game menu.

**getSelectionI**

This function will show the instructions of the game when the selection of player is I.

**getSelectionP**

This function will do the playing process and calculate balance for player when the selection of player is P.

**getSelectionQ**

This function will show player’s final balance and player’s balance history when the selection of player is Q.

**main**

The main function will show the game menu and will be the backbone of the game.

**Function getComputerChoose**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| randomNumber | If the random number is 1 then show the message “The computer chose: Punch of Fury”  If the random number is 2 then show the message “The computer chose: Kick of Punishment”  If the random number is 3 then show the message “The computer chose: Sword of Justice”  If the random number is 4 then show the message “The computer chose: Shuriken of Vengeance”  If the random number is 5 then show the message “The computer chose: Nunchucks of Anger”  If the random number is 6 then show the message “The computer chose: Knife of Freedom” |  |

**First decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The computer’s move is Punch of Fury | The random number = 1 | Show the message “The computer chose: Punch of Fury” |
|  |  |  |

**Second decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The computer’s move is Kick of Punishment | The random number = 2 | Show the message “The computer chose: Kick of Punishment” |
|  |  |  |

**Third decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The computer’s move is Sword of Justice | The random number = 3 | Show the message “The computer chose: Sword of Justice” |
|  |  |  |

**Fourth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The computer’s move is Shuriken of Vengeance | The random number = 4 | Show the message “The computer chose: Shuriken of Vengeance” |
|  |  |  |

**Fifth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The computer’s move is Nunchucks of Anger | The random number = 5 | Show the message “The computer chose: Nunchucks of Anger” |
|  |  |  |

**Sixth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The computer’s move is Knife of Freedom | The random number = 6 | Show the message “The computer chose: Knife of Freedom” |
|  |  |  |

**Algorithm:**

function getComputerChoose(randomNumber):

if randomNumber = 1

display “The computer chose: Punch of Fury”

if randomNumber = 2

display “The computer chose: Kick of Punishment”

if randomNumber = 3

display “The computer chose: Sword of Justice”

if randomNumber = 4

display “The computer chose: Shuriken of Vengeance”

if randomNumber = 5

display “The computer chose: Nunchucks of Anger”

if randomNumber = 6

display “The computer chose: Knife of Freedom”

end

**Function getPlayerChoose**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| Number | If the number is 1 then show player’s name and the message “, you chose: Punch of Fury”  If the number is 2 then show player’s name and the message “, you chose: Kick of Punishment”  If the number is 3 then show player’s name and the message “, you chose: Sword of Justice”  If the number is 4 then show player’s name the message “, you chose: Shuriken of Vengeance”  If the number is 5 then show player’s name and the message “, you chose: Nunchucks of Anger”  If the number is 6 then show player’s name and the message “, you chose: Knife of Freedom” |  |

**First decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The player’s move is Punch of Fury | The number = 1 | Show player’s name and “, you chose: Punch of Fury” |
|  |  |  |

**Second decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The player’s move is Kick of Punishment | The number = 2 | Show player’s name and “, you chose: Kick of Punishment” |
|  |  |  |

**Third decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The player’s move is Sword of Justice | The number = 3 | Show player’s name and “, you chose: Sword of Justice” |
|  |  |  |

**Fourth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The player’s move is Shuriken of Vengeance | The number = 4 | Show player’s name “, you chose: Shuriken of Vengeance” |
|  |  |  |

**Fifth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The player’s move is Nunchucks of Anger | The number = 5 | Show player’s name and “, you chose: Nunchucks of Anger” |
|  |  |  |

**Sixth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The player’s move is Knife of Freedom | The number = 6 | Show player’s name and “, you chose: Knife of Freedom” |
|  |  |  |

**Algorithm:**

function getPlayerChoose(number)

if number = 1

display player’s name “, you chose: Punch of Fury”

if number = 2

display player’s name “, you chose: Kick of Punishment”

if number = 3

display player’s name “, you chose: Sword of Justice”

if number = 4

display player’s name “, you chose: Shuriken of Vengeance”

if number = 5

display player’s name “, you chose: Nunchucks of Anger”

if number = 6

display player’s name “, you chose: Knife of Freedom”

end

**Function getResult1**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| number and randomNumber | If the number = 1 and random number = 1 then show the message “Tie No Winner”  If the number = 1 and random number = 2 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 1 and random number = 3 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 1 and random number = 4 then show the message “Congratulations, you won” and player’s name  If the number = 1 and random number = 5 then show the message “Congratulations, you won” and player’s name  If the number = 1 and random number = 6 then show the message “Unfortunately,” player’s name “, you lost” |  |

**First decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is tie | Number = 1 and random number = 1 | Show “Tie No Winner” |
|  |  |  |

**Second decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 1 and random number = 2 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Third decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 1 and random number = 3 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Fourth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 1 and random number = 4 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Fifth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 1 and random number = 5 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Sixth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 1 and random number = 6 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Algorithm:**

function getResult1(number,randomNumber)

if number = 1 and randomNumber = 1

display “Tie No Winner”

if number = 1 and randomNumber = 2

display “Unfortunately,” player’s name “, you lost”

if number = 1 and randomNumber = 3

display “Unfortunately,” player’s name “, you lost”

if number = 1 and randomNumber = 4

display “Congratulations, you won” and player’s name

if number = 1 and randomNumber = 5

display “Congratulations, you won” and player’s name

if number = 1 and randomNumber = 6

display “Unfortunately,” player’s name “, you lost”

end

**Function getResult2**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| number and randomNumber | If the number = 2 and random number = 1 then show the message “Congratulations, you won” and player’s name  If the number = 2 and random number = 2 then show the message “Tie No Winner”  If the number = 2 and random number = 3 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 2 and random number = 4 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 2 and random number = 5 then show the message “Congratulations, you won” and player’s name  If the number = 2 and random number = 6 then show the message “Unfortunately,” player’s name “, you lost” |  |

**First decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 2 and random number = 1 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Second decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is tie | Number = 2 and random number = 2 | Show “Tie No Winner” |
|  |  |  |

**Third decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 2 and random number = 3 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Fourth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 2 and random number = 4 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Fifth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 2 and random number = 5 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Sixth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 2 and random number = 6 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Algorithm:**

function getResult2(number,randomNumber)

if number = 2 and randomNumber = 1

display “Congratulations, you won” and player’s name

if number = 2 and randomNumber = 2

display “Tie No Winner”

if number = 2 and randomNumber = 3

display “Unfortunately,” player’s name “, you lost”

if number = 2 and randomNumber = 4

display “Unfortunately,” player’s name “, you lost””

if number = 2 and randomNumber = 5

display “Congratulations, you won” and player’s name

if number = 2 and randomNumber = 6

display “Unfortunately,” player’s name “, you lost”

end

**Function getResult3**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| number and randomNumber | If the number = 3 and random number = 1 then show the message “Congratulations, you won” and player’s name  If the number = 3 and random number = 2 then show the message “Congratulations, you won” and player’s name  If the number = 3 and random number = 3 then show the message “Tie No Winner”  If the number = 3 and random number = 4 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 3 and random number = 5 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 3 and random number = 6 then show the message “Congratulations, you won” and player’s name |  |

**First decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 3 and random number = 1 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Second decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 3 and random number = 2 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Third decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is tie | Number = 3 and random number = 3 | Show “Tie No Winner” |
|  |  |  |

**Fourth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 3 and random number = 4 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Fifth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 3 and random number = 5 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Sixth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 3 and random number = 6 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Algorithm:**

function getResult3(number,randomNumber)

if number = 3 and randomNumber = 1

display “Congratulations, you won” and player’s name

if number = 3 and randomNumber = 2

display “Congratulations, you won” and player’s name

if number = 3 and randomNumber = 3

display “Tie No Winner”

if number = 3 and randomNumber = 4

display “Unfortunately,” player’s name “, you lost”

if number = 3 and randomNumber = 5

display “Unfortunately,” player’s name “, you lost”

if number = 3 and randomNumber = 6

display “Congratulations, you won” and player’s name

end

**Function getResult4**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| number and randomNumber | If the number = 4 and random number = 1 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 4 and random number = 2 then show the message “Congratulations, you won” and player’s name  If the number = 4 and random number = 3 then show the message “Congratulations, you won” and player’s name  If the number = 4 and random number = 4 then show the message “Tie No Winner”  If the number = 4 and random number = 5 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 4 and random number = 6 then show the message “Congratulations, you won” and player’s name |  |

**First decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 4 and random number = 1 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Second decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 4 and random number = 2 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Third decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 4 and random number = 3 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Fourth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is tie | Number = 4 and random number = 4 | Show “Tie No Winner” |
|  |  |  |

**Fifth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 4 and random number = 5 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Sixth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 4 and random number = 6 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Algorithm:**

function getResult4(number,randomNumber)

if number = 4 and randomNumber = 1

display “Unfortunately,” player’s name “, you lost”

if number = 4 and randomNumber = 2

display “Congratulations, you won” and player’s name

if number = 4 and randomNumber = 3

display “Congratulations, you won” and player’s name

if number = 4 and randomNumber = 4

display “Tie No Winner”

if number = 4 and randomNumber = 5

display “Unfortunately,” player’s name “, you lost”

if number = 4 and randomNumber = 6

display “Congratulations, you won” and player’s name

end

**Function getResult5**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| number and randomNumber | If the number = 5 and random number = 1 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 5 and random number = 2 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 5 and random number = 3 then show the message “Congratulations, you won” and player’s name  If the number = 5 and random number = 4 then show the message “Congratulations, you won” and player’s name  If the number = 5 and random number = 5 then show the message “Tie No Winner”  If the number = 5 and random number = 6 then show the message “Unfortunately,” player’s name “, you lost” |  |

**First decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 5 and random number = 1 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Second decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 5 and random number = 2 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Third decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 5 and random number = 3 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Fourth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 5 and random number = 4 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Fifth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is tie | Number = 5 and random number = 5 | Show “Tie No Winner” |
|  |  |  |

**Sixth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 5 and random number = 6 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Algorithm:**

function getResult5(number,randomNumber)

if number = 5 and randomNumber = 1

display “Unfortunately,” player’s name “, you lost”

if number = 5 and randomNumber = 2

display “Unfortunately,” player’s name “, you lost”

if number = 5 and randomNumber = 3

display “Congratulations, you won” and player’s name

if number = 5 and randomNumber = 4

display “Congratulations, you won” and player’s name

if number = 5 and randomNumber = 5

display “Tie No Winner”

if number = 5 and randomNumber = 6

display “Unfortunately,” player’s name “, you lost”

end

**Function getResult6**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| number and randomNumber | If the number = 6 and random number = 1 then show the message “Congratulations, you won” and player’s name  If the number = 6 and random number = 2 then show the message “Congratulations, you won” and player’s name  If the number = 6 and random number = 3 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 6 and random number = 4 then show the message “Unfortunately,” player’s name “, you lost”  If the number = 6 and random number = 5 then show the message “Congratulations, you won” and player’s name  If the number = 6 and random number = 6 then show the message “Tie No Winner” |  |

**First decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 6 and random number = 1 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Second decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 6 and random number = 2 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Third decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 6 and random number = 3 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Fourth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player loses | Number = 6 and random number = 4 | Show “Unfortunately,” player’s name “, you lost” |
|  |  |  |

**Fifth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is player wins | Number = 6 and random number = 5 | Show “Congratulations, you won” and player’s name |
|  |  |  |

**Sixth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The result is tie | Number = 6 and random number = 6 | Show “Tie No Winner” |
|  |  |  |

**Algorithm:**

function getResult6(number,randomNumber)

if number = 6 and randomNumber = 1

display “Congratulations, you won” and player’s name

if number = 6 and randomNumber = 2

display “Congratulations, you won” and player’s name

if number = 6 and randomNumber = 3

display “Unfortunately,” player’s name “, you lost”

if number = 6 and randomNumber = 4

display “Unfortunately,” player’s name “, you lost”

if number = 6 and randomNumber = 5

display “Congratulations, you won” and player’s name

if number = 6 and randomNumber = 6

display “Tie No Winner”

end

**Function getSelection**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| selection | While the selection of player is not I or P or Q, show the error message and game menu  Get the selection from the player until they enter I or P or Q  Call function getSelectionI, getSelectionP and getSelectionQ |  |

**Error checking loop:**

Loop variable – selection entered by player

Exit condition – the selection is I or P or Q

**Algorithm:**

function getSelection(selection)

while selection is not “I” or “P” or “Q”:

print an error message

print game menu

get selection from player

getSelectionI(selection)

getSelectionP(selection)

getSelectionQ(selection)

end

**Function getSelectionI**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| selection | While the selection of player is I, show the instructions menu, player’s balance and game menu  Get the selection of player until they enter P or Q  Call function getSelection, getSelectionP, getSelectionQ |  |

**Instructions menu loop:**

Loop variable - selection entered by player

Exit condition - the selection is P or Q

**Algorithm:**

function getSelectionI(selection)

while selection is “I”

print instructions message

print player’s balance

print game menu

get selection from player

getSelection(selection)

getSelectionP(selection)

getSelectionQ(selection)

end

**Function getSelectionP**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| selection | Set the currentBalance of player = 100  Set the newBalance = currentBalance  While the selection of player is P, if player’s currentBalance = 0, then show their balance history and end game, else get the bet money from player  While the bet money is beyond player’s balance or not multiple of 5 or equal or less than 0, show the error message and get the bet money from player until they enter a valid amount  When the player enters a valid value, show the game play menu and get the number from player  While the number from player is not in range 1 to 6, show the error message and get the number from player until they enter a number in range 1 to 6  Call function getPlayerChoose  Generate a random number between 1-6 inclusive  Call function getComputerChoose, getResult1, getResult2, getResult3, getResult4, getResult5, getResult6  If number = 1 and randomNumber = 2 or 3 or 6 then newBalance = currentBalance - bet money  If number = 1 and randomNumber = 4 or 5 then newBalance = currentBalance + bet money  If number = 2 and randomNumber = 3 or 4 or 6 then newBalance = currentBalance - bet money  If number = 2 and randomNumber = 1 or 5 then newBalance = currentBalance + bet money  If number = 3 and randomNumber = 1 or 2 or 6 then newBalance = currentBalance + bet money  If number = 3 and randomNumber = 4 or 5 then newBalance = currentBalance - bet money  If number = 4 and randomNumber = 1 or 5 then newBalance = currentBalance - bet money  If number = 4 and randomNumber = 2 or 3 or 6 then newBalance = currentBalance + bet money  If number = 5 and randomNumber = 1 or 2 or 6 then newBalance = currentBalance - bet money  If number = 5 and randomNumber = 3 or 4 then newBalance = currentBalance + bet money  If number = 6 and randomNumber = 1 or 2 or 5 then newBalance = currentBalance + bet money  If number = 6 and randomNumber = 3 or 4 then newBalance = currentBalance - bet money  If number = randomNumber then newBalance = currentBalance  Show the newBalance of player  Set currentBalance = newBalance  Show the game menu and get the selection of player until they enter I or Q  Call function getSelection, getSelectionI, getSelectionQ |  |

**Play game menu loop:**

Loop variable - selection entered by player

Exit condition – the selection is I or Q

**Error checking loop:**

Loop variable – bet money entered by player

Exit condition - the bet money is multiple of 5 and within player’s means and greater than 0

**Error checking loop:**

Loop variable – number entered by player

Exit condition – the number is from 1 to 6

**First decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The game will end | currentBalance = 0 | Show player’s balance history and end the game |
| The game will keep playing | currentBalance > 0 | Get the bet money from player |

**Second decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will decrease | number = 1 and randomNumber = 2 or 3 or 6 | newBalance = currentBalance - bet money |
|  |  |  |

**Third decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will increase | number = 1 and randomNumber = 4 or 5 | newBalance = currentBalance + bet money |
|  |  |  |

**Fourth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will decrease | number = 2 and randomNumber = 3 or 4 or 6 | newBalance = currentBalance - bet money |
|  |  |  |

**Fifth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will increase | Number = 2 and randomNumber = 1 or 5 | newBalance = currentBalance + bet money |
|  |  |  |

**Sixth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will increase | number = 3 and randomNumber = 1 or 2 or 6 | newBalance = currentBalance + bet money |
|  |  |  |

**Seventh decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will decrease | Number = 3 and randomNumber = 4 or 5 | newBalance = currentBalance - bet money |
|  |  |  |

**Eighth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will decrease | Number = 4 and randomNumber = 1 or 5 | newBalance = currentBalance - bet money |
|  |  |  |

**Ninth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will increase | Number = 4 and randomNumber = 2 or 3 or 6 | newBalance = currentBalance + bet money |
|  |  |  |

**Tenth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will decrease | Number = 5 and randomNumber = 1 or 2 or 6 | newBalance = currentBalance - bet money |
|  |  |  |

**Eleventh decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will increase | Number = 5 and randomNumber = 3 or 4 | newBalance = currentBalance + bet money |
|  |  |  |

**Twelfth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will increase | Number = 6 and randomNumber = 1 or 2 or 5 | newBalance = currentBalance + bet money |
|  |  |  |

**Thirteenth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will decrease | Number = 6 and randomNumber = 3 or 4 | newBalance = currentBalance - bet money |
|  |  |  |

**Fourteenth decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| The balance will be unchanged | Number = randomNumber | newBalance = currentBalance |
|  |  |  |

**Algorithm:**

function getSelectionP(selection)

currentBalance = 100

newBalance = currentBalance

while selection is “P”

if currentBalance = 0

display balance history

end

else get bet money from player

while bet money is not multiple of 5 or > currentBalance or <= 0

display error message

get bet money

display the game play menu

get number from player

while number is not in 1 or 2 or 3 or 4 or 5 or 6

print error message

get number

getPlayerChoose(number)

generate randomNumber between 1-6 inclusive

getComputerChoose(randomNumber)

getResult1(number,randomNumber)

getResult2(number,randomNumber)

getResult3(number,randomNumber)

getResult4(number,randomNumber)

getResult5(number,randomNumber)

getResult6(number,randomNumber)

if number = 1 and randomNumber = 2 or 3 or 6

newBalance = currentBalance - bet money

if number = 1 and randomNumber = 4 or 5

newBalance = currentBalance + bet money

if number = 2 and randomNumber = 3 or 4 or 6

newBalance = currentBalance - bet money

if number = 2 and randomNumber = 1 or 5

newBalance = currentBalance + bet money

if number = 3 and randomNumber = 1 or 2 or 6

newBalance = currentBalance + bet money

if number = 3 and randomNumber = 4 or 5

newBalance = currentBalance - bet money

if number = 4 and randomNumber = 1 or 5

newBalance = currentBalance - bet money

if number = 4 and randomNumber = 2 or 3 or 6

newBalance = currentBalance + bet money

if number = 5 and randomNumber = 1 or 2 or 6

newBalance = currentBalance - bet money

if number = 5 and randomNumber = 3 or 4

newBalance = currentBalance + bet money

if number = 6 and randomNumber = 1 or 2 or 5

newBalance = currentBalance + bet money

if number = 6 and randomNumber = 3 or 4

newBalance = currentBalance - bet money

if number = randomNumber

newBalance = currentBalance

display newBalance

currentBalance = newBalance

print game menu

get selection

getSelection(selection)

getSelectionI(selection)

getSelectionQ(selection)

end

**Function getSelectionQ**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| selection | If the selection of player is Q, then show player’s balance and their balance history |  |

**Quit decision:**

|  |  |  |
| --- | --- | --- |
| **Path** | **Condition** | **Action** |
| Quit the game | The selection is Q | Show player’s balance and their balance history |
|  |  |  |

**Algorithm:**

function getSelectionQ(selection)

if selection is “Q”

print player’s balance

print balance history

end

**Function main**

|  |  |  |
| --- | --- | --- |
| **Input** | **Processing** | **Output** |
| selection | Show game menu  Get the selection of player  Call function getSelection, getSelectionI, getSelectionP, getSelectionQ |  |

**Algorithm:**

main():

print game menu

get player selection

getSelection(selection)

getSelectionI(selection)

getSelectionP(selection)

getSelectionQ(selection)

end