**Problem Definition**

The task is to build a blackjack game that follows the standard rules. There are four main components to the task: the player, dealer, AI players, and graphics. The task also puts a heavy emphasis on OOP (Object-Oriented Programming) so the software needs to be built with this in mind.

The task also includes a large amount of documentation to be completed. The documentation required is as follows:

* Problem Definition: Outlining the task to be solved.
* Needs & Objectives: Outlining what is needed to complete the task and what the goals are.
* Feasibility Report: Outlining how feasible it is to complete the task with the goals set in mind.
* Evaluation of Implementation Methods: Evaluating different development methodologies and recommending one for the task.
* Build Log: Detailing the development events that occur while the solution is being built and tested.
* Forum Posts: There has to be regular posts on the ScotsICT Forum to update progress.
* Data Flow Diagram: Showing how data flows through the system.
* System Flowchart: Reflecting the dealer’s algorithm in the solution.

The basic rules of blackjack are as follows:

* The aim of the game is for the player to get as close as they can to 21, however, if they go over they go bust and lose.
* The game is played with a standard 52 card deck.
* The player/s play against the dealer, not against each other. This means that if they beat each other’s hand, it doesn’t matter if they don’t beat the dealer.
* Each card is worth its numerical value (1=1, 4=4 etc), face cards are worth 10 and the ace is worth 1 or 11, depending on which is better for the player.
* The players place bets before the cards are dealt
* The player is dealt 2 cards face up and the dealer dealt 1 face up and 1 face down at the start of the round
* The main action of the player is to either hit or stand; If they hit, then they are dealt another card, and if they stand, then they stop getting cards and wait for the dealer to play.
* There are also 2 additional actions the player can do; split and double down.
* At the start of the round if the player is dealt two identical cards (e.g. two queens) then they have the option to split. If they split, then their cards separate and they can hit and stand on the two cards as they now have 2 hands. They also have to place an identical bet that they made originally on the new hand.
* If the player’s total sum after they are dealt 2 cards is 9, 10 or 11. They have the option to double down. If they double down, they double their bet and get one more card and are then forced to stand.