CS 514  Project 1

## Domain:

The domain I choose is an automated system for investment advice.
This type of expert system helps people to manage their assets. The aim is to maximize the expected return and minimise the risk when determining asset allocation.
However, a portfolio is generally designed according to the investor's risk tolerance, time frame and investment objectives. The monetary value of each asset may influence the risk/reward ratio of the portfolio.

This type of expert system is widely used for tasks like assets portfolio management or stock portfolio management. Similarly, it can be used for finding best combination bets. The reasoning task I want to automate is to find the best combination that satisfies the gambler's risk tolerance from given bets.

## Task:

**A simple sport betting advisor**
It's automated reasoning works as follows

1. Read preference provided by the user
2. Validate given preferences and bets then filter out unwanted one. Assuming those bets are founded by web crawler or provided by the sport betting companies through api.
3. Analyze the filtered bets by calculating their expected value and risk according to investor's risk tolerance.
4. Print out the result.

## Examples:

1. I created three bets and they will be marked as high risk, mid and low risk based on the given  prefered risk bound.
2. This example shows how a bet is filtered out since it's expired.
3. This example shows how to match bets that include multiple sports. This example also shows how to assert

## Variables used in the program:

**Common**
sport : Sport name

bet-type: The type of bet provided by the provider. For example, a straight wager is a bet on the outright winner of a game or event.

bet-type-arg: The argument required by different types of bets. For example, a straight wager has two options Win or Lose.

country: The available countries

payment-method: The payment method.

provider: The betting company that provides the service.

**Preference**
pid: id of this preference

time-start/end: The user's prefered time (in epoch time) to start/end.

risk-bound-high/mid/low: The user defines bounds to define a bet as high/mid/low risk based on it's expected value.

currency: The prefered currency.
bet-amount: Prefered bet amount.

**Bet**
bid: id of this bet

odds: The odds of a bet, it should be larger than 1.

winning-rate: The winning rate of a bet. Assuming it's computed based on collected data from the internet.

timeslot-start/end: Starting/ending time (in epoch time) of a bet.

fee: The fee required by the provider.

min/max-amount: The minimum/maximum amount of money required to put on a bet.

currency: The currency provided by the provider.

**Provider**
payment-method-available: The payment methods provided by the provider.

currency-available: The available currencies.

country-available: The available countries.

available: Indicating whether the provider is currently available.

## Usage:
Unzip, run (batch “<path-to-directory>/exampleX.clp”) in Jess shell
where X is the example number.