Project (10 Marks)



Design and develop expert system using Prolog. Describe the problem which gave rise for thedevelopment of this Expert System. This description should convince the reader why developingan expert system for solving this problem is needed. The report should contain the followingsections:

**Introduction**. This part includes problem description and necessity of developing expert

system to deal with it.

**Knowledge Sources**. This part should explain the sources of all the facts and rules you

have used it to develop the expert system.

**Facts**. This part should show all the predicates you have used. Order the facts in related

groups and add comments to describe each group.

**Rules**. This part should show all the rules you have used. Order the rules in related groups

and add comments to describe each group.

**The Prolog source file**. This part should contain the source code in .PL format.

**Introduction**

Developing an expert system for game accessibility is necessary because people with disabilities often face difficulties when playing video games. These difficulties can include problems with color perception, vision, hearing, and motor skills. However, many games do not have built-in accessibility features that cater to these needs.

One of the main problems that people with disabilities face when playing video games is the lack of support for accessibility features. Many games do not have built-in support for color blindness, screen readers, closed captions, high contrast, invert colors, magnifiers, and remappable controls. This can make it difficult for people with disabilities to enjoy the game and may even prevent them from playing it at all.

An expert system for game accessibility can help solve this problem by providing a way for people with disabilities to easily determine which games have built-in support for the accessibility features they need. The expert system can also provide information on how to use these features and any additional software or hardware that may be required. This can make it easier for people with disabilities to find and enjoy games that are accessible to them.

The expert system can also be useful for game developers, as it can help them understand the accessibility needs of their target audience. This can help developers make informed decisions about which accessibility features to include in their games, and can help ensure that their games are accessible to as many players as possible.

Overall, developing an expert system for game accessibility can help improve the gaming experience for people with disabilities and can also help game developers create more accessible games.

**Knowledge Sources**

There are a few sources where you can find information on which games have built-in support for accessibility features. Some examples include:

The International Game Developers Association (IGDA) has an accessibility SIG (Special Interest Group) that maintains a list of games that have been evaluated for their accessibility features. This list can be found here: <http://www.igda.org/accessibility/games/>

The AbleGamers Charity organization also has a list of games that have been evaluated for accessibility <https://www.ablegamers.com/ablegamers-game-library/>

The SpecialEffect charity organization also has a list of games that have been evaluated for accessibility. <https://www.specialeffect.org.uk/games-library>

The website Game Accessibility Guidelines (GAG) is a source for game accessibility information, it includes a list of games that have been evaluated for accessibility. <https://gameaccessibilityguidelines.com/games/>

The website Game Accessibility Features (GAF) is also a source for game accessibility information, it includes a list of games that have been evaluated for accessibility <https://gameaccessibilityfeatures.com/>

The website Can I Play That is a source of game accessibility information, it includes a list of games that have been evaluated for accessibility. <https://www.caniplaythat.com/>

**Facts**

supports\_color\_blind(overwatch).

supports\_screen\_reader(overwatch).

supports\_closed\_captioning(overwatch).

supports\_high\_contrast(overwatch).

supports\_color\_blind(fortnite).

supports\_screen\_reader(fortnite).

supports\_remappable\_controls(fortnite).

supports\_color\_blind(minecraft).

supports\_closed\_captioning(minecraft).

supports\_invert\_colors(minecraft).

supports\_magnifier(minecraft).

supports\_screen\_reader(world\_of\_warcraft).

supports\_high\_contrast(world\_of\_warcraft).

supports\_remappable\_controls(world\_of\_warcraft).

**Rules**

**game\_accessibility(Game, color\_blind) :- supports\_color\_blind(Game).**

**game\_accessibility(Game, screen\_reader) :- supports\_screen\_reader(Game).**

**game\_accessibility(Game, closed\_captioning) :- supports\_closed\_captioning(Game).**

**game\_accessibility(Game, high\_contrast) :- supports\_high\_contrast(Game).**

**game\_accessibility(Game, invert\_colors) :- supports\_invert\_colors(Game).**

**game\_accessibility(Game, magnifier) :- supports\_magnifier(Game).**

**game\_accessibility(Game, remappable\_controls) :- supports\_remappable\_controls(Game).**

**Test Code**

**?- game\_accessibility(overwatch, closed\_captioning).**

**true.**

**?- game\_accessibility(overwatch, high\_contrast).**

**true.**

**?- game\_accessibility(fortnite, remappable\_controls).**

**true.**

**?- game\_accessibility(minecraft, invert\_colors).**

**true.**

**?- game\_accessibility(world\_of\_warcraft, magnifier).**

**false.**

**The Prolog source file**.

[**https://drive.google.com/file/d/1QFla6I9QcdhrljDTazK80yW9I8kxboSU/view?usp=sharing**](https://drive.google.com/file/d/1QFla6I9QcdhrljDTazK80yW9I8kxboSU/view?usp=sharing)