Implementation:

Code:

```
/** DRAMA */
film('Zielona mila','Frank Darabont',1999,'drama', 'others',  188,'USA','Tom Hanks',8.7,719).
film('Pif Paf! Jestes trup', 'Guy Ferland', 2002, 'drama', 'others',  87, 'Kanada', 'Ben Foster', 7.7, 16).
film('Dogville', 'Lars von Trier', 2003, 'drama', 'others', 178, 'Dania', 'Nicole Kidman', 7.7, 45).
film('Z dystansu', 'Ton Kayne', 2011, 'drama', 'others', 100, 'USA', 'Adrien Brody', 7.9, 30).
film('Lista Schindlera', 'Steven Spielberg', 1993, 'drama', 'others', 195, 'USA', 'Adrien Brody', 8.4, 259).
film('Requiem dla snu', 'Darren Aronofsky', 2000, 'drama', 'others', 102, 'USA', 'Jared Leto', 7.9, 520).
film('Biutiful', 'Alejandro Gonzalez Inarritu', 2010, 'drama', 'others', 148, 'Hiszpania', 'Javier Bardem', 7.6, 12).
film('Czarny labedz', 'Darren Aronofsky', 2010, 'drama', 'others', 108, 'USA', 'Natalie Portman', 7.7, 248).
film('Gladiator', 'Ridley Scott', 2000, 'drama', 'others', 155, 'USA', 'Russell Crowe', 8.1, 552).
film('Dzien swira', 'Marek Koterski', 2002, 'drama', 'others', 123, 'Polska', 'Marek Kondrat', 7.8, 438).
film('Pianista', 'Roman Polanski', 2002, 'drama', 'others', 150, 'Polska', 'Adrien Brody', 8.3, 410).
/** COMEDY */
film('Seksmisja', 'Juliusz Machulski', 1984, 'comedy', 'others', 118, 'Polska', 'Jerzy Stuhr', 7.9, 420).
film('Forrest Gump', 'Robert Zemeckis', 1994, 'comedy', 'others', 144, 'USA', 'Tom Hanks', 8.6, 697).
film('Kac Vegas', 'Todd Phillips', 2009, 'comedy', 'others', 100, 'USA', 'Bradley Cooper', 7.3, 537).
film('Notykalni', 'Olivier Nakache', 2011, 'comedy', 'others', 112, 'Francja', 'Francois Cluzet', 8.7, 393).
film('Truman Show', 'Peter Weir', 1998, 'comedy', 'others', 103, 'USA', 'Jim Carrey', 7.4, 383).
film('Kiler', 'Juliusz Machulski', 1997, 'comedy', 'others', 104, 'Polska', 'Cezary Pazura', 7.7, 315).
film('Kevin sam w domu', 'Chris Columbus', 1990, 'comedy', 'others', 103, 'USA', 'Macaulay Culkin', 7.1, 297).
film('Mis', 'Stanislaw Bareja', 1980, 'comedy', 'others', 111, 'Polska', 'Stanislaw Tym', 7.8, 261).
film('Diabel ubiera sie u Prady', 'David Frankel', 2006, 'comedy', 'others', 109, 'USA', 'Meryl Streep', 6.9, 227).
film('Jak rozpetalem druga wojne swiatowa', 'Tadeusz Chmielewski', 1969, 'comedy', 'others', 236, 'Polska', 'Marian Kociniak', 7.9, 195).
/** ADVENTURE */
film('Wladca Pierscieni: Druzyna Pierscienia', 'Peter Jackson', 2001, 'adventure', 'fantasy', 178, 'Nowa Zelandia', 'Elijah Wood', 8.1, 503).
film('Sherlock Holmes', 'Guy Ritchie', 2009, 'adventure', 'family', 128, 'Nomcy', 'Robert Downey Jr', 7.8, 317).
film('Harry Potter i Kamien Filozoficzny', 'Chris Columbus', 2001, 'adventure', 'fantasy', 152, 'Wielka Brytania', 'Danol Radcliffe', 7.4, 269).
film('Hobbit: Nozwykla podroz', 'Peter Jackson', 2012, 'adventure', 'fantasy', 169, 'Nowa Zelandia', 'Martin Freeman', 7.7, 269).
film('Piraci z Karaibow: Skrzynia umarlaka', 'Gore Verbinski', 2006, 'adventure', 'fantasy', 150, 'USA', 'Johnny Depp', 7.8, 295).
film('Matrix', 'Andy Wachowski', 1999, 'adventure', 'scifi', 136, 'USA', 'Keanu Reeves', 7.6, 629).
film('Powrot do przyszlosci', 'Robert Zemeckis', 1985, 'adventure', 'scifi', 116, 'USA', 'Michael J. Fox', 7.3, 265).
film('W pustyni i w puszczy', 'Gavin Hood', 2001, 'adventure', 'family', 110, 'Polska', 'Karolina Sawka', 5.6, 48).
film('Wiedzmin', 'Marek Brodzki', 2001, 'adventure', 'fantasy', 130, 'Polska', 'Michal Zebrowski', 3.9, 37).
film('Gwiezdne wojny: Czesc IV - Nowa nadzieja', 'George Lucas', 1977, 'adventure', 'scifi', 121, 'USA', 'Mark Hamill', 8.0, 199).
/** THRILLER */
film('Milczeno owiec', 'Jonathan Demme', 1991, 'thriller', 'others', 118, 'USA', 'Anthony Hopkins', 8.2, 474).
```

(Implementation Part – 01)

```
film('Gwiezdne wojny: Czesc IV - Nowa nadzieja', 'George Lucas', 1977, 'adventure', 'scifi', 121, 'USA', 'Mark Hamill', 8.0, 199).
/** THRILLER */
film('Milczeno owiec', 'Jonathan Demme', 1991, 'thriller', 'others', 118, 'USA', 'Anthony Hopkins', 8.2, 474).
film('Kod da Vinci', 'Ron Howard', 2006, 'thriller', 'others', 149, 'USA', 'Tom Hanks', 6.6, 447).
film('Szosty zmysl', 'M. Night Shyamalan', 1999, 'thriller', 'others', 107, 'USA', 'Bruce Willis', 7.9, 482).
film('Podzmieny krag', 'David Fincher', 1999, 'thriller', 'others', 139, 'Nomcy', 'Brad Pitt', 8.3, 426).
film('Se7en', 'David Fincher', 1995, 'thriller', 'others', 127, 'USA', 'Morgan Freeman', 8.3, 409).
film('Wyspa tajemnic', 'Martin Scorsese', 2010, 'thriller', 'others', 138, 'USA', 'Leonardo Di Caprio', 8.1, 374).
film('Adwokat diabla', 'Taylor Hackford', 1997, 'thriller', 'others', 144, 'Nomcy', 'Keanu Reeves', 8.0, 317).
film('Sala samobojcow', 'Jan Komasa', 2011, 'thriller', 'others', 'Polska', 117, 'Jakub Gierszal', 6.5, 223).
film('American Psycho', 'Mary Harron', 2000, 'thriller', 'others', 'USA', 101, 'Christian Bale', 7.3, 105).
film('Inni', 'Alejandro Amenabar', 2001, 'thriller', 'others', 'Francja', 101, 'Nicole Kidman', 7.4, 166).
/** ANIMATION */
film('Shrek', 'Andrew Adamson', 2001, 'animation', 'others', 90, 'USA', 'Mike Myers', 7.8, 604).
film('Epoka lodowcowa', 'Chris Wedge', 2002, 'animation', 'others', 81, 'USA', 'Cezary Pazura', 7.6, 359).
film('Krol lew', 'Rob Minkoff', 1994, 'animation', 'others', 89, 'USA', 'Matthew Broderick', 8.3, 381).
film('Madagaskar', 'Tom McGrath', 2005, 'animation', 'others', 86, 'USA', 'Ben Stiller', 7.5, 290).
film('Odlot', 'Pete Docter', 2009, 'animation', 'others', 96, 'USA', 'Edward Asner', 7.4, 161).
film('Gdzie jest Nemo?', 'Andrew Stanton', 2003, 'animation', 'others', 100, 'Australia', 'Alexander Gould', 7.1, 126).
film('Toy Story', 'John Lasseter', 1995, 'animation', 'others', 80, 'USA', 'Tom Hanks', 7.4, 124).
film('Kosmiczny mecz', 'Joe Pytka', 1996, 'animation', 'others', 88, 'USA', 'Michael Jordan', 6.9, 100).
film('Miasteczko South Park', 'Trey Parker', 1999, 'animation', 'others', 81, 'USA', 'Trey Parker', 7.2, 59).
film('Tarzan', 'Chris Buck', 1999, 'animation', 'others', 88, 'USA', 'Tony Goldwyn', 7.4, 42).
/** ROMANCE */
film('Czekolada', 'Lasse Hallstrom', 2000, 'romance', 'others', 117, 'USA', 'Juliette Binoche', 7.5, 164).
film('Step Up - Tanoc zmyslow', 'Anne Fletcher', 2006, 'romance', 'others', 104, 'USA', 'Channing Tatum', 7.0, 174).
film('Czas na milosc', 'Richard Curtis', 2013, 'romance', 'others', 119, 'Wielka Brytania', 'Domhnall Gleeson', 7.6, 100).
film('500 dni milosci', 'Marc Webb', 2009, 'romance', 'others', 95, 'USA', 'Joseph Gordon-Levitt', 7.2, 99).
film('Lepiej pozno niz poznoj', 'Nancy Meyers', 2003, 'romance', 'others', 128, 'USA', 'Jack Nicholson', 7.0, 102).
film('Amelia', 'Jean-Pierre Jeunet', 2001, 'romance', 'others', 129, 'Francja', 'Audrey Tautou', 7.6, 203).
film('To wlasno milosc', 'Richard Curtis', 2003, 'romance', 'others', 135, 'USA', 'Colin Firth', 7.7, 173).
film('Dziennik Bridget Jones', 'Sharon Maguire', 2001, 'romance', 'others', 97, 'Wielka Brytania', 'Renee Zellweger', 6.9, 204).
film('Tylko mno kochaj', 'Ryszard Zatorski', 2006, 'romance', 'others', 98, 'Polska', 'Agnoszka Grochowska', 5.8, 137).
film('Nigdy w zyciu!', 'Ryszard Zatorski', 2004, 'romance', 'others', 100, 'Polska', 'Danuta Stenka', 6.2, 129).
/** HORROR */
film('Lsnono', 'Stanley Kubrick', 1980, 'horror', 'psychopaths', 146, 'USA', 'Jack Nicholson', 7.9, 293).
film('Jestem legenda', 'Francis Lawrence', 2007, 'horror', 'monsters', 101, 'Australia', 'Will Smith', 7.5, 344).
```

(Implementation Part – 02)

```prolog
film('Jestem legenda', 'Francis Lawrence', 2007, 'horror', 'monsters', 101, 'Australia', 'Will Smith', 7.5, 344).
film('Wywiad z wampirem', 'Neil Jordan', 1994, 'horror', 'monsters', 123, 'USA', 'Brad Pitt', 7.8, 243).
film('Obcy - 8. pasazer Nostromo', 'Ridley Scott', 1979, 'horror', 'monsters', 117, 'USA', 'Sigourney Weaver', 7.9, 211).
film('The Ring', 'Gore Verbinski', 2002, 'horror', 'ghosts', 115, 'Japonia', 'Naomi Watts', 7.0, 173).
film('Pila', 'James Wan', 2004, 'horror', 'psychopaths', 103, 'Australia', 'Tobin Bell', 6.7, 172).
film('Oszukac przeznaczeno', 'James Wong', 2000, 'horror', 'others', 98, 'Kanada', 'Devon Sawa', 6.6, 158).
film('Dziewiate wrota', 'Roman Polanski', 1999, 'horror', 'others', 133, 'Francja', 'Johnny Depp', 7.3, 148).
film('Obecnosc', 'James Wan', 2013, 'horror', 'ghosts', 112, 'USA', 'Vera Farmiga', 7.4, 116).
film('Sierocinoc', 'Juan Antonio Bayona', 2007, 'horror', 'ghosts', 105, 'Hiszpania', 'Belen Rueda', 7.0, 119).
film('Rytual', 'Mikael Hafstrom', 2011, 'horror', 'ghosts', 114, 'USA', 'Anthony Hopkins', 6.8, 84).
/** ACTORS */
actress('Nicole Kidman').
actress('Natalie Portman').
actress('Meryl Streep').
actress('Karolina Sawka').
actress('Juliette Binoche').
actress('Channing Tatum').
actress('Audrey Tautou').
actress('Renee Zellweger').
actress('Agnieszka Grochowska').
actress('Danuta Stenka').
actress('Sigourney Weaver').
actress('Naomi Watts').
actress('Vera Farmiga').
actress('Belen Rueda').
actor(X) :- not(actress(X)).
/** HELPERS FUNCTION */
polish(Y)                      :- film(Y,_,_,_,_,_,X,_,_,_), X='Polska'.
foreign(Y)                     :- film(Y,_,_,_,_,_,X,_,_,_), X \= 'Polska'.
film_with_actor(Y)             :- film(Y,_,_,_,_,_,_,X,_,_), actor(X).
film_with_actress(Y)           :- film(Y,_,_,_,_,_,_,X,_,_), actress(X).
duration(Y,O)                  :- film(Y,_,_,_,_,X,_,_,_,_), 20 < X, X < 90, O =='short'.
duration(Y,O)                  :- film(Y,_,_,_,_,X,_,_,_,_), 91 < X, X < 170, O =='long'.
duration(Y,O)                  :- film(Y,_,_,_,_,X,_,_,_,_), 171< X, O =='verylong'.
year(Y,O)                      :- film(Y,_,X,_,_,_,_,_,_,_), X < 1980, O =='older'.
year(Y,O)                      :- film(Y,_,X,_,_,_,_,_,_,_), 1981 < X, X < 2005, O =='decent'.
year(Y,O)                      :- film(Y,_,X,_,_,_,_,_,_,_), 2006 < X, O =='newer'.
```

(Implementation Part – 03)

```prolog
duration(Y,O)                           :- film(Y,_,_,_,_,X,_,_,_,_), 171< X, O =='verylong'.
year(Y,O)                                :- film(Y,_,X,_,_,_,_,_,_,_), X < 1980, O =='older'.
year(Y,O)                                :- film(Y,_,X,_,_,_,_,_,_,_), 1981 < X, X < 2005, O =='decent'.
year(Y,O)                                :- film(Y,_,X,_,_,_,_,_,_,_), 2006 < X, O =='newer'.
year(Y,O1,O2,O3,O4,O5,O6)       :- test(Y,O1,O2,O3,O4,O5,O6).
year(Y,O1,O2,O3,O4,O5,O6)       :- test(Y,O1,O2,O3,O4,O5).
year(Y,O1,O2,O3,O4,O5,O6)       :- test(Y,O1,O2,O3,O5).
year(Y,O1,O2,O3,O4,O5,O6)       :- test(Y,O2,O3,O5).
year(Y,O1,O2,O3,O4,O5,O6)       :- test(Y,O2,O5).
test(Y,O1,O2,O3,O4,O5,O6)        :- year(Y,O1), film(Y,_,_,O2,_,_,_,_,_,_), duration(Y,O3), (O4 == 'no' -> foreign(Y)), film(Y,_,_,_,_,O5,_,_,_,_), (O6 == 'w' ->
film_with_actress(Y) ; O6 == 'm' -> film_with_actor(Y)), !.
test(Y,O1,O2,O3,O4,O5)            :- year(Y,O1), film(Y,_,_,O2,_,_,_,_,_,_), duration(Y,O3), (O4 == 'no' -> foreign(Y)), film(Y,_,_,_,_,O5,_,_,_,_), !.
test(Y,O1,O2,O3,O5)               :- year(Y,O1), film(Y,_,_,O2,_,_,_,_,_,_), duration(Y,O3), film(Y,_,_,_,_,O5,_,_,_,_), !.
test(Y,O2,O3,O5)                  :- film(Y,_,_,O2,_,_,_,_,_,_), duration(Y,O3), film(Y,_,_,_,_,O5,_,_,_,_), !.
test(Y,O2,O5)                     :- film(Y,_,_,O2,_,_,_,_,_,_), film(Y,_,_,_,_,O5,_,_,_,_), !.
recommendation(X, Y, O)           :- (X == 'woman', Y == 'happy'), O = 'comedy, adventure, romance'.
recommendation(X, Y, O)           :- (X == 'woman', Y == 'sad'), O = 'drama, animation'.
recommendation(X, Y, O)           :- (X == 'woman', Y == 'normal'), O = 'horror, animation, romance'.
recommendation(X, Y, O)           :- (X == 'man', Y == 'happy'), O = 'comedy, adventure, thriller'.
recommendation(X, Y, O)           :- (X == 'man', Y == 'sad'), O = 'drama, comedy'.
recommendation(X, Y, O)           :- (X == 'man', Y == 'normal'), O = 'horror, animation, thriller'.
recommendation(X, Y, O).
/** EXPERT SYSTEM */
start(Y) :-
            write('Expert System - Film Recommender OMNIBUS 2000'),nl,
            write('Please answer questions below'),nl,
            write('It helps to find best film for you'),nl,nl,
/** STARTING QUESTIONS */
            write('   What is your name? '),
            read(Name),nl,
            write('   Hello '),
                        write(Name),nl,
                        write('   What is your sex? '),nl,
                        write('1. Woman'),nl,
                        write('2. Man'),nl,
                        read(Sex),nl,
                        write('   What is your mood? ').nl.
```

(Implementation Part – 04)

```prolog
                          write('   What is your mood? '),nl,
                          write('1. Sad'),nl,
                          write('2. Happy'),nl,
                          write('3. Normal'),nl,
                          read(Mood),nl,
                          write('Thanks to your answers we recommend following film gendre:'),nl,
                          recommendation(Sex, Mood, Gendre),
                          write(Gendre),nl,nl,


        %%Ans1 - year
        %%Ans2 - gendre
        %%Ans3 - duration
        %%Ans4 - production
        %%Ans5 - special feature
        %%Ans6 - main character
/** QUESTION - YEAR PRODUCTION */
                          write('   Do you like old films?'),nl,
                          write('1. Yes'),nl,
                          write('2. No'),nl,
                          read(A1),nl,
                          (  A1 == 'no' ->
                             write('   Something new?'),nl,
                             write('1. Yes'),nl,
                                 write('2. No'),nl,
                                 read(A2),nl,
                                 (A2 == 'no' -> Ans1 = 'decent' ; Ans1 = 'newer')
                                 ;
                             Ans1 = 'older'
                          ),
/** QUESTION - FILM GENDRE */
                          write('   What film genre do you prefer?'),nl,
                          write('1. Animation'),nl,
                          write('2. Drama'),nl,
                          write('3. Horror'),nl,
                          write('4. Comedy'),nl,
                          write('5. Romance'),nl,
                          write('6. Thriller'),nl
```

(Implementation Part – 05)

```
                                        write('6. Thriller'),nl,
                                        write('7. Adventure'),nl,
                                        read(Ans2),nl,
/** QUESTION - SPECIAL FEATURE */
                                        (Ans2 == 'horror' ->
                                            write('   What are you afraid of?'),nl,
                                      write('1. Monsters'),nl,
                                            write('2. Ghosts'),nl,
                                            write('3. Others'),nl,
                                            read(Ans5),nl
                                            ;
                                            (Ans2 == 'adventure' ->
                                            write('   What type of film adventure?'),nl,
                                      write('1. Fantasy'),nl,
                                            write('2. Sci-Fi'),nl,
                                            write('3. Family'),nl,
                                            read(Ans5),nl
                                            ;
                                            Ans5='others'
                                            )
                                        ),
/** QUESTION - DURATION */
                                        write('   How many time do you have?'),nl,
                                        write('1. Little'),nl,
                                        write('2. Many'),nl,
                                        read(C1),nl,
                                        (   C1 == 'many' ->
                                            write('   Do you really have a lot of time?'),nl,
                                            write('1. Yes'),nl,
                                                write('2. No'),nl,
                                                read(C2),nl,
                                                (C2 == 'no' -> Ans3 = 'long' ; Ans3 = 'verylong')
                                                ;
                                            Ans3 = 'short'
                                        ),
/** QUESTION - COUNTRY PRODUCTION */
```

(Implementation Part – 06)

```prolog
                              Ans5='others'
                              )
                         ),
/** QUESTION - DURATION */
                         write('   How many time do you have?'),nl,
                         write('1. Little'),nl,
                         write('2. Many'),nl,
                         read(C1),nl,
                         (  C1 == 'many' ->
                            write('   Do you really have a lot of time?'),nl,
                            write('1. Yes'),nl,
                               write('2. No'),nl,
                               read(C2),nl,
                               (C2 == 'no' -> Ans3 = 'long' ; Ans3 = 'verylong')
                               ;
                            Ans3 = 'short'
                         ),
/** QUESTION - COUNTRY PRODUCTION */
                         write('   Do you like polish cinema?'),nl,
                         write('1. Yes'),nl,
                         write('2. No'),nl,
                         read(Ans4),nl,
/** QUESTION - MAIN CHARACTER */
                         write('   Is main character a man?'),nl,
                         write('1. Yes'),nl,
                         write('2. No'),nl,
                         write('2. Whatever'),nl,
                         read(E1),nl,
                         (  E1 == 'yes' ->
                            Ans6 = 'm'
                               ;
                               (E1 == 'no' -> Ans6 = 'w' ; Ans6 = '')
                         ),

/** QUESTION - YEAR PRODUCTION */
                         year(Y,Ans1,Ans2,Ans3,Ans4,Ans5,Ans6).
```

(Implementation Part – 07)

Output:

```
?- start(Y).
Expert System - Film Recommender OMNIBUS 2000
Please answer questions below
It helps to find best film for you

    What is your name? Deepak.

    Hello _18206
    What is your sex?
1. Woman
2. Man
|: man.

    What is your mood?
1. Sad
2. Happy
3. Normal
|: normal.

Thanks to your answers we recommend following film gendre:
horror, animation, thriller

    Do you like old films?
1. Yes
2. No
|: yes.

    What film genre do you prefer?
1. Animation
2. Drama
3. Horror
4. Comedy
5. Romance
6. Thriller
7. Adventure
|: animation.

    How many time do you have?
1. Little
2. Many
|: little.

    Do you like polish cinema?
1. Yes
2. No
|: no.

    Is main character a man?
1. Yes
2. No
2. Whatever
```

(Output Part – 01)

```
1. Woman
2. Man
|: man.

    What is your mood?
1. Sad
2. Happy
3. Normal
|: normal.

Thanks to your answers we recommend following film gendre:
horror, animation, thriller

    Do you like old films?
1. Yes
2. No
|: yes.

    What film genre do you prefer?
1. Animation
2. Drama
3. Horror
4. Comedy
5. Romance
6. Thriller
7. Adventure
|: animation.

    How many time do you have?
1. Little
2. Many
|: little.

    Do you like polish cinema?
1. Yes
2. No
|: no.

    Is main character a man?
1. Yes
2. No
2. Whatever
|: yes.

Y = 'Epoka lodowcova' .

?- █
```

(Output Part – 02)