parts of the Medina of Fes. In the second style, the applied tendency to create geometric space is obvious, and both of the prominent elements of the landscape (tree and water) are seen in most public open spaces. In general, it seems that space development in the city of Meknes is stronger for social interactions, both in macro-scale (government communication with the people) and in micro-scale of neighborhood (people to people contacts).

If three distinct visions of rulers’ decisions, thoughts of architects and builders, and public opinion in meeting their needs affect the formation of a variety of open spaces, by reviewing the historical record of Meknes, it can be concluded that the formation of public open spaces in this city has been most influenced by the thoughts of the rulers, architects, and builders. The city of Fes has always had a special political situation in Morocco throughout the history, and each time that it became the capital city, the central government did not have complete authority over the entire country. Hence, the rulers’ attention was more focused on calming down and neutralizing their internal sovereignty and foreign invasion. Thus, compared to the Meknes, it seems that the kings in this city have a more modest role in shaping the city’s public open space, and these spaces are shaped and expanded largely on the basis of the needs of the people and with the help of architects.

References

the possibility that Moulay Ismael has been influenced by French thought in shaping the spaces of Meknes.

The second hypothesis revolves around the influences of Eastern and Iranian culture and civilization on creating the space and formation of developed neighborhood centers in Meknes. Iran, as a rich ancient civilization, has had transcendental experiences in the field of urban planning and gardening. The kingdom period of Sultan Moulay Ismail coincides with the Safavid era in Iran, which is a kind of progressive architectural peak, transcendental gardening, the creation of the BagheShahr of Isfahan, and the Naqsh-e Jahan Square. The history of the creation of Al-Hadim Square is after the creation of Naqsh-e Jahan Square. It is necessary to state that, in order to accept or reject the second hypothesis, extensive studies need to be conducted to investigate the direct connection between the courts of Iran and Morocco during the Safavid period and the earlier periods, or the possible habitation of Iranians in this country. On the other hand, it is required to analyze indirect but effective relationships. For example, in the early Safavid period, the Portuguese built their castle on the island of Qeshm; and the courts of Iran and Portugal, and in the following years Iran and Spain, which dominated Portugal, had political connections. On the other hand, Portugal and Spain, the northern neighbors of Morocco, during the history and during the reign of Moulay Ismail, had many relations and sometimes conquerors in Morocco. Thus, a platform for communication and modeling of Iranian progressive culture could be somehow provided. Also, the influence of Iranian architecture in North Africa, especially during the earlier periods, is visible; therefore, Iran could have indirectly influenced the culture of the Morocco as part of Africa. As the impact of Persian gardening in the collection of palaces-gardens of Al-Hamrae is undeniable. Also, some of the leaders who were the founders of the Egyptian Fatimid dynasty were originally Iraqi-Iranian. The author, with library searches, has not come to a definitive conclusion about the influence of Iran on the spatial development of Morocco, especially in the city of Meknes, and only the trace of Iran’s influence on the architecture and spatial development of North Africa from Egypt to Morocco in different periods is visible. Since there has not been a comprehensive, precise study on the impact of Iran on the architecture, gardening and urbanization of North Africa, and in particular in Morocco, which can be cited in this study, this study does not cover the scope of this article, here is just the possibility of Iran’s influence on the formation of these spaces in Meknes.

The above can be summarized in Table 5. Due to the unavailability of sufficient information on the relationship between Iran and Morocco during the Safavid era, the second hypothesis is weaker than the first hypothesis. Thus, in another comprehensive study, one can only focus on the deeper roots of the relationship between Morocco and France in the seventeenth century, and the realization of this assumption.

**Conclusion**

Investigating the types of public open spaces in the two historic cities of Fes and Meknes in Morocco shows two different styles in the public open spaces of Medina in these two cities. The first style is formed in response to basic needs and is geometrically organicnt, so this spatial extension does not necessarily include the two prominent elements of landscape i.e. the tree and the water.

This style of creating space is seen in different
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center of the neighborhood (the intersection of the tissue pathways) in the city of Meknes, it is rarely seen in the public open spaces of the city of Fes.

Hypotheses in the formation of large-scale public open spaces in the city of Meknes:

It is required to conduct a comprehensive and independent research on the distinction between Fes and Meknes public open spaces; however, this paper will extend the field for future research with the hypotheses presented in this context.

Sultan Moulay Ismail was the king of Morocco in the 17th century. During his reign, the city of Meknes was first elected as the capital of Morocco. It is necessary to point out that the creation of government squares and geometric open spaces in the city of Meknes occurred during the reign of Moulay Ismail and by his own command when the central government was stable and dominated the whole country. Therefore, in the light of this peace and stability, there is a ground for the flowering of art with the support of the Shah. In relation to the effective fields in the formation of such public open spaces, the author raises two hypotheses.

In the first hypothesis, the formation of such a space in Meknes is influenced by the French, and as a result of the relationship between Sultan Moulay Ismail and the court of Louis XIV. In historical books, including the history of the civilization of Will Durant, there is a reference to the demand for the Sultan Moulay Ismail’s marriage to Louis XIV’s daughter. This is a demand for strengthening the relations between the two countries, which represents the broad relations between the two countries in this period of history. In the French sources, there is evidence of the relationship between the French ambassador to the court of Shah Moulay Ismail and even details of the private life of the Shah that confirms this communication. It has also been quoted that the liberation of a city that had been under Spanish siege for five months, Louis XIV, helped King Moulay Ismail (The Great Islamic Encyclopedia, 1998). So far, existence of a close relationship between Morocco and France is clear. After rejecting the suitor demand for Sultan Moulay Ismail (history certificate he had many women and children) by the daughter of Louis XIV, Sultan declares he is determined to build Morocco’s Versailles in Meknes (Dumper & Stanley, 2006). Meknes is a city that today is structurally divided into two parts of the royal and context inhabited by the general public. The construction of several buildings for the Shah’s family residence before it was not widely held in Morocco, and according to the Sultan’s claim, it can be derived from the royal structure of France, palaces, gardens and halls of Versailles. Moulay Ismail built a collection of palaces, gardens and mosques in Meknes. The royal part includes all the required centers, including the dedicated mosque of LaleOdeh and the vast government square. For illustrious of his glory and authority, Moulay Ismail created houses in the western part of Meknes Medina in the vicinity of the royal district, the destruction and Al-Hadim Square, which the name of square also refers to the destruction of this historical texture. Thus, Moulay Ismail gave Meknes royal beauties. It is mentioned in the sources that the king used the materials in Vlubilis (the Roman area of the third century BC) to build his palace in Meknes. Therefore, to show the glory and power of the Shah by creating large-scale and full decorated spaces such as palaces, facades (the gate of Bab al-Mansour) and government squares, which are components of the 17th-century architecture of France (the Baroque period), it is well seen in Meknes architecture and urbanization during this period. Thus, the relatively close relationship between the king and the French, on the one hand, and the absence of such spaces in other cities of Morocco, on the other hand, reinforces
The quality of public open space increases due to the presence of green space and blue elements for both physical and objective reasons and for mental and psychological reasons. Also, geometry governing space can refer to material needs and to the cultural and metaphorical aspects of the thinking of the builders. Thus, in order to better compare and analyze the different types of public open space in this study, the main elements of landscape space such as plant and water, geometry and spatial order and the presence of complementary elements such as sitting and interaction spaces in a given species are presented in the following table (Table 4).

Table 4: Comparison of the main elements and complementary aspects of landscape and space geometry in different types of public open spaces in Fes and Meknes, Source: Author.

<table>
<thead>
<tr>
<th></th>
<th>The main elements of the landscape</th>
<th>Space geometry</th>
<th>Complementary elements of landscape</th>
<th>The presence of furniture or space for people to interact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tree</td>
<td>Water (in the form of a creek)</td>
<td>Regular geometry</td>
<td>Organic geometry</td>
</tr>
<tr>
<td>Square</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Openings in front of the monuments</td>
<td>Najaria Caravanserai</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Saffurin School</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Roofed space in front of the monument</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Open spaces</td>
<td>In Fes</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Openings at the intersection of the pathways</td>
<td>In Meknes</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Openings of neighboring units</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The following results can be deduced from the information in this table:

- Open spaces openings at the intersection of pathways in the city of Meknes, due to the presence of landscape elements (both plant and water elements) and regular spatial geometry, are a more complete example of this type of public open space in the city of Fes.
- Most public open spaces in the city of Fes have organic geometries, while the maximum public open spaces in the city of Meknes have relatively regular spatial geometry.
- There are urban squares only in the city of Meknes.
- As a prominent landscape element, the creek is seen in most of the public open spaces in both cities.
- Although the element of tree is bold in the
Openings in context pathways
Occasionally, space openings without distinct geometry are formed within the Medina context at the intersection of the passageways (Figure 14). In these spatial areas, there are often creeks. Sometimes it gets wider in the main route due to the presence of a pathway creek in this place (Fig. 15). The multiplicity of these spaces in the Medina context of Fes is not high. Thus, in the Medina of Fes city there will not be found a large-scale public open space with specific geometry. Space openness is rarely seen only in front of the monuments, which also lacks specific geometry.

Analysis and investigation of public open space species in two cities of Fes and Meknes
In general, the typology of public open spaces in Medina of both Meknes and Fes can be summarized in the following table:
The above table shows that public open spaces in Fes and Meknes have significant differences in shape, size, and usage. One of the most significant differences between the various public open spaces in Fes and Meknes is the existence of government squares in the city of Meknes.
On the other hand, it is noteworthy that although public open space in the city of Meknes contains more upscale spaces in terms of geometric shapes and large-scale public space. But in the city of Fes, a hierarchy of open public spaces is seen from the private and semi-private scale in the residential area to the urban space. This is summarized in Table 3.

Table. 2. Different types of public open spaces in Fes and Meknes, Source: Author.
**Roofed open space at the entrance to the prominent building**

Except from the Najarin Caravanserai and Mohammadiyeh Safarin School, in other prominent buildings in Medina of Fes such as Bou-o-nani-yah and Qarawin mosque, changing the landscape of the passage in the form of a cover over the pathway is shown which is named Sabat. Thus this roofed pathway change signalizes the presence of the special building (Figs 12 & 13).

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**Fig. 10.** Open space in front of Safarín School, Fes. photo: shina sad-berenji.

**Fig. 11.** Position of the openings in front of the Najarin Caravanserai and Safarín School.

**Fig. 12.** Roofed pathway at the entrance of the Qarawin mosque, Fes. photo: shina sad-berenji.

**Fig. 13.** Roofed pathway at the entrance of the Bou-o-nani-yah School, Fes. photo: shina sad-berenji.
Semi-open space of neighborhood unit
Among the outstanding open spaces in Medina context of Fes is the semi-open roofed spaces as the common space of neighborhoods unit. These spaces sometimes are separated from sub pathways sometimes with doors, sometimes without doors and defined between several common units. Most of these spaces have openings in the wall in the form of a window without a glass and a guard, and all are roofed (Figs 7 and 8).

Openness of open space at the intersection of pathways in front of the prominent monuments
In the Medina of Fes, there is rarely an open space at the intersection of the pathways. Two cases of these types of open spaces in Fes situate at the intersection of the pathways in front of the Najarin Caravanserai and the other in front of the Al-Mohammadiyeh Safarin School (Figs 9, 10 and 11). This opening of space at the Najarin Caravanserai takes place in such a way that provides the opportunity to watch the decorated facade of the building. In fact, this opening has geometry close to a triangle and one of the main sides of the triangle is the Najarin Caravanserai facade. By staying in this place, the main facade unconsciously catches the eyes of the visitors. There is a decorated wall fountain in this open space, but there is no green space on the site. In the open range in front of the Mohammadiyeh Safarin School, the space opening like the public open space in front of the Najarin caravanserai has no definite geometry and is approximately close to the triangle. The difference between these types of space opening with the previous ones is the presence of a solid tree in this space.
**LalehOdeh Imperial Square**

LalehOdeh Square, located in the imperial part of the city at the time of Moulay Ismail, was the venue for the public visits of the Shah (Honnor, 2008). A geometric and broad Square, in which plant elements such as the tree are also found. However, according to Rogerson, plants have been planted in the square in recent years. Apparently, the Square was at the time of the construction of the enclosed ceremonial area of the palace complexes of the Moulay Ismail that the spectacular monuments were located around the square. Today, only the LalehOdeh Mosque remains. A large part of the palaces has been destroyed by the son of Sultan Moulay Abdullah. (Rogerson, 2000) (Fig2).

**Open spaces as the neighborhood center**

At the intersection of the pathways within the Medina of Meknes, spacious space openings are somewhat geometric and with the presence of a vegetation index element (often a berry tree) in the center of this space. These spaces sometimes form adjacent to public spaces, such as baths and creeks (Figs 3 & 4).

Thus, in the city of Meknes, the pedestrian square appears at the intersection of Medina and the Imperial Range with geometries close to the rectangle, and this type of square is repeated in the imperial part with stronger geometry. On the other hand, openness at the intersection of pathways in residential texture is formed geometrically and contains green elements.

1. Public open spaces in Fes

The hierarchy of space is very strong in Medina of Fes, so that the main pathways which are dedicated to the market use with more width and pathways which end in residential houses with less width are branched from the main pathways. One of the common features of the old area of Fes is the absence of tree in public open space. Except 2 cases in public open space, there was no tree in the Medina tissue of Fes (Figs 5 & 6).
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done (Woolley, 2003). Some of the city’s public spaces theorists are also presenting categories of urban public spaces throughout their studies. In investigating the hierarchy of urban open spaces, Hallperin initially refers to the street, then small squares on the scale of the neighborhood and local parks, and ultimately the open space on the roof (Kashanijou, 2010: 101). The main emphasis of Claire Cooper Marcus is the urban spaces and the people in which they are located. In the book of public places, He et al. (1997) evaluate the residential environment and categorize urban spaces, especially in terms of social communications, in seven groups: urban plazas, local parks (neighborhoods units), compact parks, open spaces of schools, residential open space for the elderly, open spaces for the preservation and play of children, rehabilitation open spaces (hospitals) (Rezaei, 2004: 58). These categories are often presented from the point of view of planners, designers, and managers of open spaces for development and reconstruction. In the meantime, attention to the personal experience of visitors, especially at a certain scale of urban texture, should not be left out of research into the typology of spaces. recognition and typology of open spaces that are used and experienced by people in the old textures (in a situation where the texture has been relatively intact during the history of its formation) provide a ground for a deeper understanding of the lives and thoughts of builders and users of space in the past and present. Therefore, this study attempts to examine the public open spaces in Medina of Fes and Meknes on the basis of field observations, and to extract and provide the prevailing patterns.

Types of public open spaces in Meknes
The cities of Rabat, Marrakesh, Fes, and Meknes were capital of Morocco in different periods. Meknes is the smallest city between them which was the capital of Morocco from 1675 to 1728, along with the early days of the Alevian rule. Fes was the capital of Morocco six times in history and Meknes once in the 17th century. Meknes public spaces can be generally divided into urban squares and neighborhood centers that have been formed at intersections of pathways within the texture. Unlike many other cities in Morocco like the Fes, there are large-scale urban public open spaces, such as Al-Hadim Square and LalehOdeh Square. The types of public open spaces species seen in the old textures of Meknes are as follows.

**Pedestrian Square on the urban scale**

**Al Hadim Square**

Al-Hadim Square is an urban square between the Imperial and Medina part of the city of Meknes. This Square is fairly regular 4-sided with dimensions of about 125 meters at 55 meters (Figs 1 and 2). Along the middle longitudinal axis of this square, on one side is the famous gate of the Bab al-Mansour, and on the other side is a creek (fountain) next to the Darul-Jamea museum, which is not exactly the middle of the side. At the time of construction, this square was a space for government declarations and executions that, in the current era, is a public space of local foods restaurants with a very active nightlife, so that the square is full of crowds in the hours after sunset.
Open space classification

Open space is a common theme among various disciplines such as landscape architecture, urban planning, and urban design. The functions of open space are multifaceted and multiple. The importance of open space from different perspectives of social, environmental, economic, aesthetics and health need not be explained, and therefore research in relation to the assessment and classification of open spaces has increased in recent years.

Urban open spaces grouping into types and categories have been used frequently as a means of planning. Such groupings often lead to a typology or a hierarchy of open urban spaces (Woolley, 2003, 73). Lynch provides the categories of regional parks, squares, plazas, linear parks, adventure lands, playgrounds and moorland for open spaces.

The London Planning Advisory Committee advertises the hierarchy of parks includes local small parks, local parks, countryside parks, metropolitan parks, regional parks, and linear open spaces. The Institute of Leisure & Amenity Management offers a classification based on the function of spaces that include cultural and visual values. Traverse Morgan in 1991 criticized the hierarchical classification approach. Open space on the basis of performance is also categorized as providing relaxation and rest, wildlife conservation, agricultural and natural resources, landscapes, and shaping and controlling urbanization by the Eckbo. In recent studies, the London Planning Advisory Committee enumerates seven functions for parks that include amusement, structural, welfare, environmental, social, cultural and educational activities. Separating the urban space and green space is another divisions that have been
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Introduction

Public open spaces play a key role in the life of the city, making people communicate with each other and people with a natural environment (Table 1). The tight, compressed, densely packed context of Medina in the cities of Morocco makes public open spaces as complementary places to play a more prominent role in this texture. The importance of addressing the public open spaces in the historical context of the cities of Morocco is due to the preservation of the original patterns and the historical structure of these cities. The expansion of public open spaces has been shaped differently under the influence of time, social and environmental conditions. Hence, comparative study of these spaces provides an appropriate basis for recognition. In this regard, Fes and Meknes with similarities in geographical indicators, being the capital of Morocco and etc. are analyzed and compared in this study. Public open spaces in Fes and Meknes have been shaped in different styles. In other words, the difference in layout, neighbors, scale, geometry, and how public open spaces are located in these two cities is significant. In order to properly understand the diverse open spaces and to analyze how they are formed, it is first necessary to achieve a proper understanding of these spaces. In other words, recognizing the similarities and differences between different public open spaces in the two cities of Fes and Meknes can provide a basis for analyzing and designing further studies on the underlying causes of these open spaces. Therefore, this paper tries to explore the types of public open spaces in the two major cities of Fes and Meknes, both of which have been in periods of Morocco’s history as the capital of the country, and provide background for further research on the causes of the formation of these differences.

So the main questions of this research are:
What are the characteristics of the public open spaces in Medina of Fes and Meknes and what are their typologies?
What are the similarities and differences between the public open spaces in Medina of the cities of Fes and Meknes in terms of the elements of landscape and space geometry?

This study attempts to answer the above questions in an analytical descriptive manner and by collecting and analyzing information based on field observations and completing information based on library studies.

Urban open spaces theorists

The urban open spaces theorists focus on issues such as the areas of collective life and private life (Chermayeff, 1998), attention to the elements and physical aspects of the public arena of the city (Rob Kareerand, 1975, Aldo Rossi, 1982), the sense of place and scale of public open spaces (Mumford, 1938), the introduction of a variety of urban spaces and explanation of the principles of designing each with an indigenous approach (Pakzad, 2005), emphasis on the general public areas of the city as the third
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Abstract
Urban public open spaces play an important role in linking the constituent elements of the city and are considered to be a critical factor in the city. The oldest context of the cities of Morocco, known as Medina, due to preserving its original structure, consists of good patterns for the recognition and analysis of vital open spaces. The public open spaces of the two cities of Fes and Meknes in Morocco are the case studies in this paper. During the visit to Medina of the two cities of Fes and Meknes, a dramatic difference was seen in public open space of these two cities. Public open space in Medina of Meknes is relatively geometric and shaped by larger scales, while this type of open space is not seen in Medina of Fes. Most public spaces in Medina of Fes have organic geometry. These differences led the author to find out more about the open spaces in these two cities (Medinas) by examining and analyzing field observations of the typology of these types of spaces and how to search them. Meknes and Fes are chosen for this research because of some similarities as both of them were the capital of Morocco in periods of Moroccan history, the recording of both the textures in the UNESCO historical monuments and the location of both in a geographic area on the one hand and the structural differences in their public open spaces on the other hand has taken place. Fes, with its ancient history and urbanization attributed to the descendants of Imam Hassan Mojtaba (peace be upon him) as an ancient Islamic pattern, is important. Meknes As well is significant because of the inclusion of more complete examples of public open space in Medina. This paper seeks to discover the typology of the public open spaces in Fas and Meknes, based on field observation which is the basis for future research on why these differences are emerging. This descriptive-analytic study was conducted by collecting and analyzing information based on field observations and collecting information from library studies. The review and analysis of various public open spaces in Fes and Meknes shows that the public open spaces in Medina of these two cities can be classified in the following categories: the squares in the Medina texture, the open spaces in front of the outstanding monuments, the open spaces at the intersection of several pathways and the open (semi-open) spaces in neighboring units. The open spaces in front of the outstanding monuments and open spaces at the intersection of their pathways include sub-species. This paper examines and analyzes how these open spaces are arranged and what are the existing elements in them.

Keywords
Public open space, Typology, Medina, Meknes, Fes.